United States Department of Agriculture

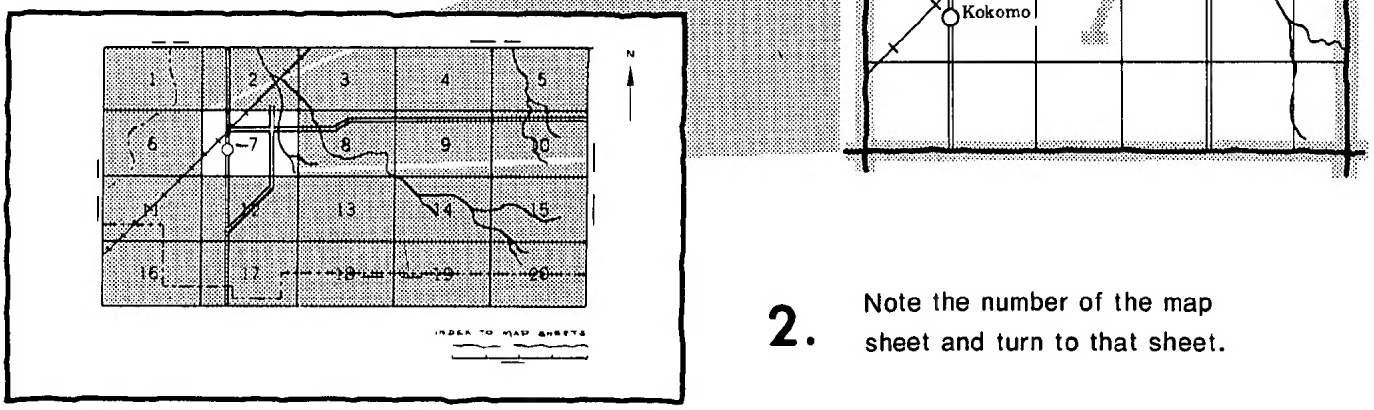
Soil Conservation Service

In cooperation with The University of Georgia, College of Agriculture, Agricultural Experiment Stations

Soil Survey of Calhoun and Early Counties Georgia

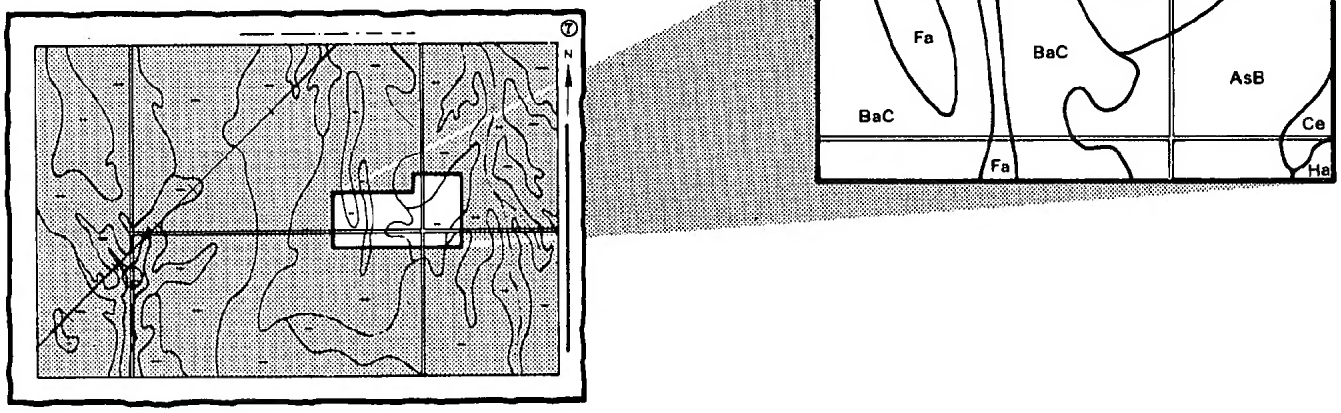
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets"

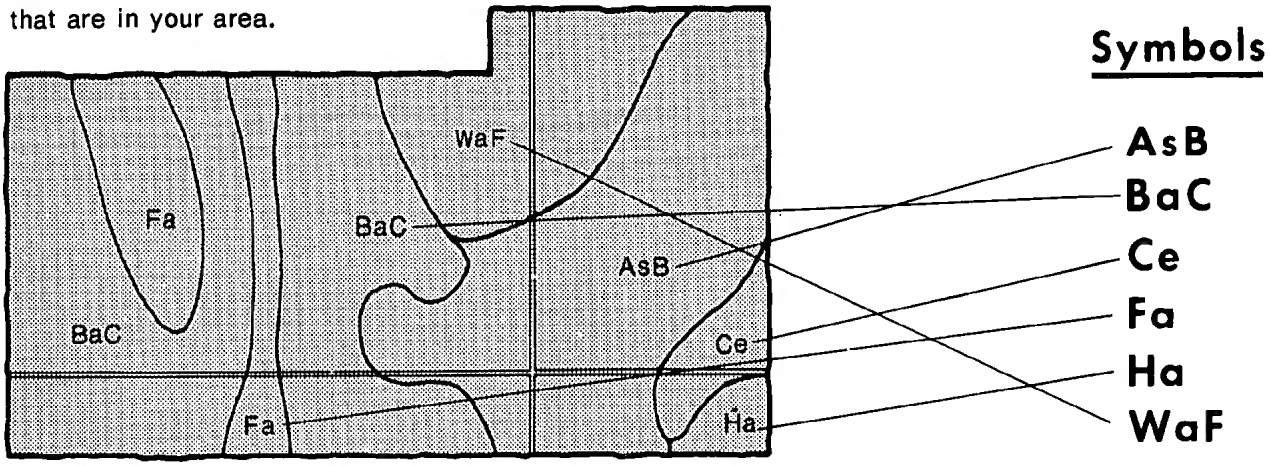


2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.

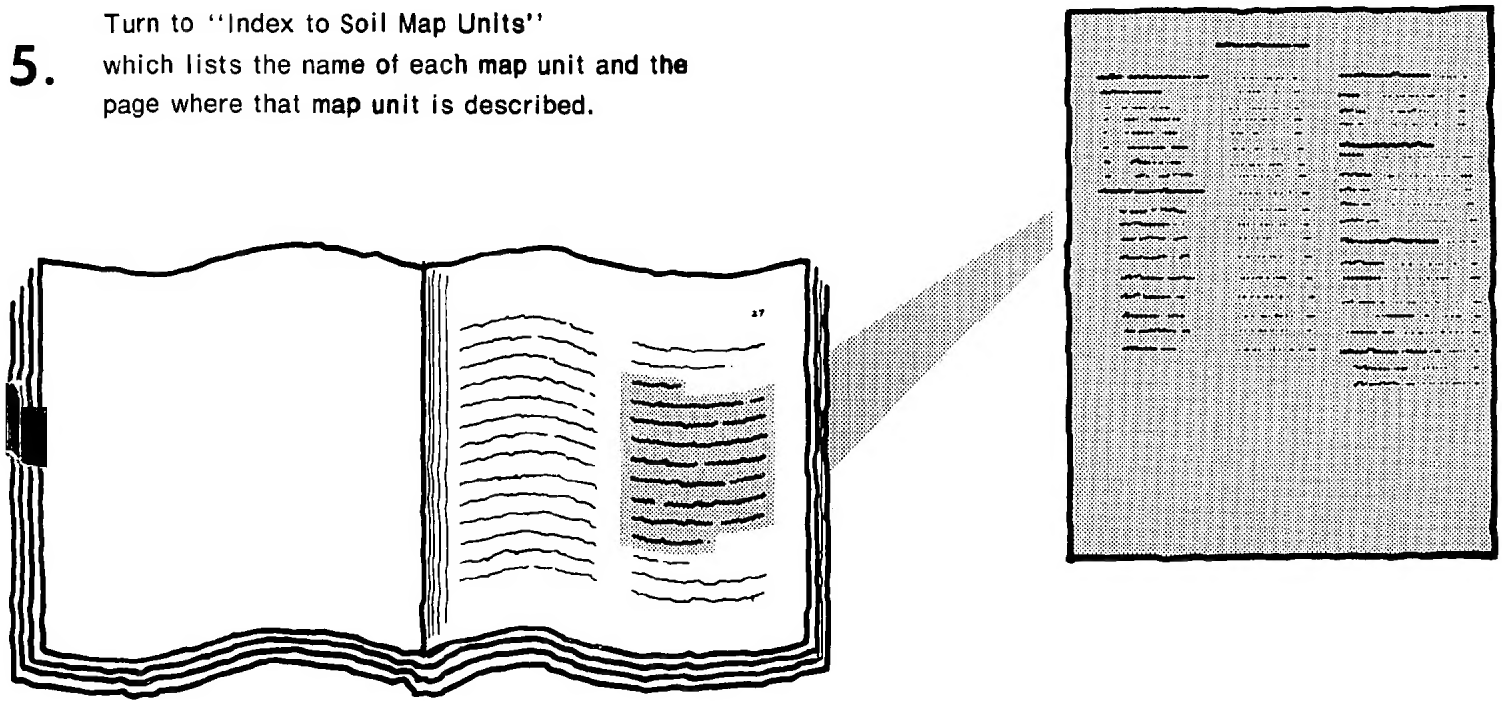


4. List the map unit symbols that are in your area.

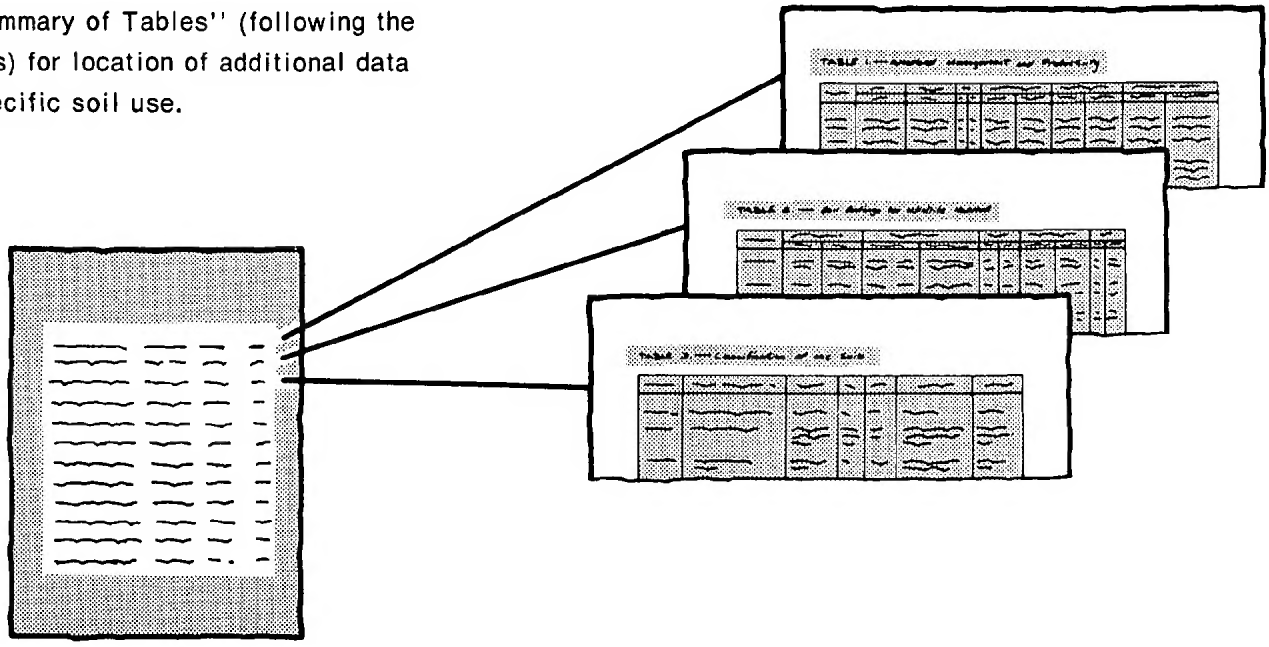


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

This survey was made cooperatively by the Soil Conservation Service and the University of Georgia, College of Agriculture, Agricultural Experiment Stations. It is part of the technical assistance furnished to the Flint River Soil and Water Conservation District. Major fieldwork for this soil survey was completed in 1977-1981. Soil names and descriptions were approved in 1981. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1981.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Peanuts on Tifton loamy sand, 2 to 5 percent slopes. This is prime farmland, well suited to crops.

Contents

Soil Series

Issued December 1985

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Summary of Tables

Foreword

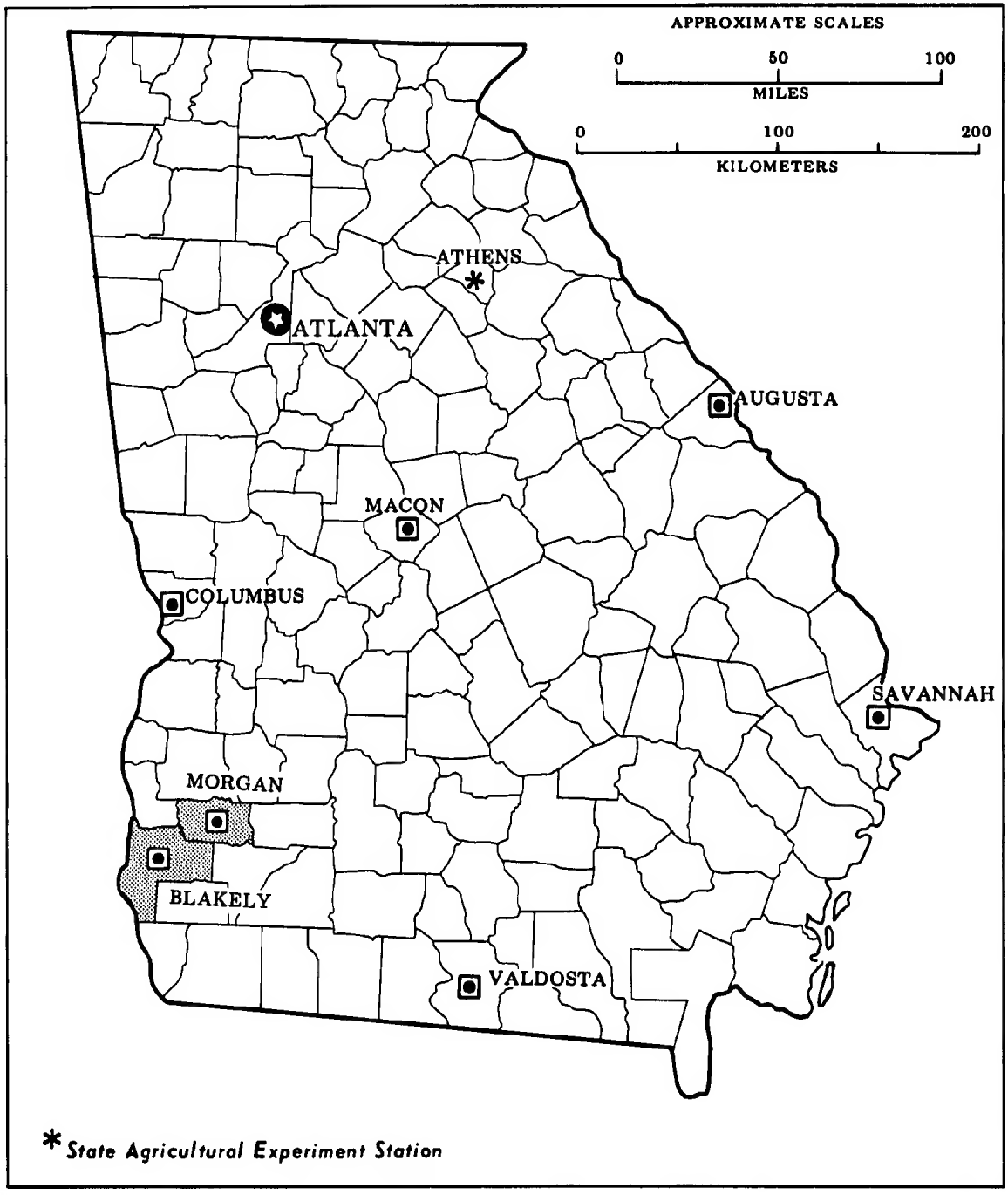
This soil survey contains information that can be used in land-planning programs in Calhoun and Early Counties. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the suitability of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

B. Clayton Graham
State Conservationist
Soil Conservation Service



Location of Calhoun and Early Counties in Georgia.

Soil Survey of Calhoun and Early Counties, Georgia

By Jerry A. Pilkinton, Soil Conservation Service

Soils surveyed by Jerry A. Pilkinton, Howard D. Gay, Royce G. Middleton, and Ernest H. Smith, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
in cooperation with
the University of Georgia, College of Agriculture,
Agricultural Experiment Stations

Calhoun and Early Counties are in southwest Georgia. They cover an area of 812.7 square miles, or 520,128 acres. Calhoun County has 184,768 acres, and Early County has 335,360 acres. Morgan is the county seat of Calhoun County, and Blakely is the county seat of Early County. In 1980, Calhoun County had a population of 5,783, and Early County, a population of 13,061. About half the population lives in rural areas.

Calhoun and Early Counties are in the Southern Coastal Plain Major Land Resource Area. The Chattahoochee River, which separates Georgia and Alabama, is the west boundary of Early County. Calhoun County is just northeast of Early County. The Chattahoochee River combined with its major tributaries of Coheelee, Kirkland, and Sawhatchee Creeks drains the western part of Early County. Dry and Spring Creeks drain most of the remaining parts of Early County. Chickasawhatchee, Ichawaynochaway, Pitchitla, and Spring Creeks drain most of Calhoun County.

About three-fourths of the survey area is made up of nearly level to strongly sloping, dominantly well drained soils on uplands. Most of the soils have a sandy or loamy surface layer and a loamy or clayey subsoil. The rest of the soils on uplands are nearly level and less well drained. They have a sandy surface layer and loamy subsoil or a loamy surface layer and clayey subsoil. Nearly level, poorly drained soils on flood plains and low stream terraces are near the creeks. The soils on flood plains are loamy throughout; those on low stream terraces have a loamy surface layer and a clayey subsoil. Rarely flooded, nearly level soils on the high stream terrace and on flood plains in Early County are near the Chattahoochee River. The soils on the stream terrace are moderately well drained and well drained. They have a loamy surface layer and a dominantly clayey subsoil. The soils on flood plains are excessively drained and dominantly sandy throughout.

Most of the soils on uplands and those on the high stream terrace in Early County are used for farming and woodland; some are in pecan trees. The soils on flood plains and low stream terraces are mainly wooded.

The first soil survey of Calhoun County was published in 1928 (*7*). The first soil survey of Early County was published in 1921 (*6*). This survey updates the first surveys and provides additional information.

General Nature of the Survey Area

This section gives general information concerning the survey area. It describes the climate, settlement, water resources, and farming.

Climate

The Calhoun and Early County area has long, hot summers because it is enveloped in moist tropical air from the Gulf of Mexico. Winters are cool and fairly

short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly in the form of afternoon thunderstorms, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Blakely, Georgia, for the period 1951 to 1979. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season in Blakely, Georgia.

In winter the average temperature is 50 degrees F, and the average daily minimum temperature is 39 degrees. The lowest temperature on record, which occurred at Blakely on December 12, 1962, is 6 degrees. In summer the average temperature is 80 degrees, and the average daily maximum temperature is 91 degrees. The highest recorded temperature, which occurred on June 28, 1954, is 107 degrees.

Growing degree days, shown in table 1, are equivalent to heat units. During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 29 inches, or 55 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 22 inches. The heaviest 1-day rainfall during the period of record was 5.7 inches at Blakely on June 20, 1972. Thunderstorms occur on about 65 days each year, and most occur in summer.

Snowfall is rare; in 90 percent of the winters there is no measurable snowfall. In 10 percent, the snowfall, usually of short duration, is more than 1 inch. The heaviest 1-day snowfall on record was more than 3 inches.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The percentage of possible sunshine is 70 percent in summer and 60 percent in winter. The prevailing wind is from the north. Windspeed is highest in the spring, when the average windspeed is 8 miles per hour.

Severe local storms, including tornadoes, strike occasionally in or near the area. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane which has moved inland causes extremely heavy rains for 1 to 3 days.

Climatic data for this section were especially prepared for the Soil Conservation Service by the National Climatic Center, Asheville, North Carolina.

Settlement

The survey area was originally the home of the Creek Indians. In the 1820's, settlers mainly from Virginia, Maryland, the Carolinas, and older settlements in Georgia began inhabiting the area.

Calhoun County was established by an act of the General Assembly of Georgia on February 20, 1854. It was separated from Baker and Early Counties and named for John Caldwell Calhoun, who was U.S. Senator from South Carolina and was Vice President of the United States from 1825 to 1832. Calhoun County was the 111th in order of organization of Georgia's 159 counties.

Early County was established by an act of the General Assembly of Georgia on December 15, 1818. When Early County was organized it included Baker, Calhoun, Decatur, Dougherty, Grady, Miller, and Mitchell Counties and part of Thomas County. The county was named for Peter Early, a noted politician of Georgia.

Calhoun and Early Counties are mainly agricultural and have nearly 329,000 acres of prime farmland. A papermill near the Chattahoochee River is the largest industry in the survey area, and a few agricultural and forestry industries are also important. The area has many ground transportation routes to local and out-of-state markets. The Chattahoochee River is used for water transportation. Public utilities are available in most places.

Water Resources

Chickasawhatchee, Ichawaynochaway, Pitchitla, and Spring Creeks provide water for Calhoun County. The Chattahoochee River and Coheelee, Dry, Kirkland, Sawhatchee, and Spring Creeks provide water for Early County. In addition to the natural watercourses, a few ponds are used for watering livestock and for irrigation and recreation.

Wells 10 to 12 inches in diameter are drilled into deep aquifers to produce abundant water. In addition to the regular uses, they provide water for irrigation. The wells commonly are about 300 feet deep, but some are no more than 125 feet or as much as 700 feet deep. Most wells average between 250 to 600 gallons per minute.

Farming

Subsistence crops grown by the early settlers in the survey area were mainly corn, oats, rye, and wheat. Cattle and hogs grazed the open woods. After the war between the states, the farmers urgently needed a cash crop to rebuild their farming operation. Cotton was selected and was the main crop grown until about 1916 when the boll weevil caused serious problems in production. After about 1916, corn and peanuts replaced the cotton in the cropping system. Currently, corn,

soybeans, sorghum grain, small grain, peanuts, cotton, and pecans are the main crops.

Soil erosion and low soil fertility have been the most important management concerns on farmland in the survey area over the years. In the early 1900's, farming became more intense and tenant-type farming was widespread. This led to misuse of the land, and soil erosion increased dramatically. Changes in land ownership were common, and soil fertility was not maintained in most places. The economic depression in the early 1930's marked the climax of man's assault on the land.

Conservationists noted a definite need to protect the land against depletion. The enactment of soil conservation district legislation in 1937 by the State of Georgia was supported by the leading farmers of Calhoun and Early Counties. These two counties were among the nine included in the Flint River Soil and Water Conservation District when it was organized in 1939. Farmers in the two counties began using terraces, grassed waterways, improved pastures, and ponds to control erosion and increase productivity. They used the soil according to its capability and treated it in accordance with the needs of the crop. The soil survey maps made by the Soil Conservation Service became the basis for determining the capability of each soil. Many sloping, seriously eroded fields that had been cultivated were put in grass or trees.

In the 1960's and early 1970's, public concern about the productive capacity of American agriculture prompted a national inventory of important farmlands. The best land in Calhoun and Early Counties available for producing food, feed, forage, fiber, and oilseed crops is identified in the section "Important Farmland".

In 1978, farms covered 147,986 acres, or 80.0 percent, of Calhoun County; they covered 196,211 acres, or 58.5 percent, of Early County.

Many of the soils are well suited to sprinkler irrigation. About 38,000 acres in the survey area was under irrigation in 1979. Most of the irrigated land is used for corn, peanuts, and soybeans.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biologic activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with considerable accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another resulting in gradual changes in characteristics. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were assembled from other sources, such as research information, production records, and field experience of specialists. For example,

data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. These latter soils are called inclusions or included soils.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed, and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation to precisely define and locate the soil is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil maps at the back of this publication show broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil maps is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil maps can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the maps. Likewise, areas where the soils are not suitable can be identified.

Because of their small scale, the maps are not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area differ in suitability for major land uses. In this section, each map unit describes the visual elements of landform, water, vegetation or land use, and structure. The units are classified as having a low or moderate degree of visual diversity. This is a value rating of landscape elements and their pattern within a frame of reference developed for a local geographic area. Visual diversity can be used in conservation planning and in establishing a desirable continuity of landscape elements. The extent of the units is given, and their components are identified and described. The main concerns of management and the soil properties that limit use are indicated. Suitability or the degree of limitation are given for the common uses.

CALHOUN COUNTY

Nearly level soils on flood plains or low stream terraces

Two units in Calhoun County are made up of poorly drained soils on flood plains or stream terraces. The soils on flood plains are loamy and mainly gray throughout; those on stream terraces have a loamy surface layer and a clayey subsoil that are mainly gray throughout. Slope ranges from 0 to 2 percent.

1. Herod-Muckalee

Poorly drained soils that mainly are loamy throughout, on flood plains

This unit consists of poorly drained, nearly level soils that are mainly on the long, broad flood plains of Chickasawhatchee, Ichawaynochaway, and Pachitla Creeks and on the more narrow flood plains of branches to these creeks. Slope is 0 to 2 percent. Most of the streams are perennial and have a winding channel. They overflow frequently in winter and spring. The soils in this unit are mostly wooded, and the main trees are sweetgum, water tupelo, cypress, and bay. Other than roads and utilities, there is little manmade development. The degree of visual diversity of the landscape is low.

This unit makes up about 7 percent of Calhoun County. Herod soils make up about 60 percent of the unit; Muckalee soils about 30 percent; and minor soils, about 10 percent.

Herod soils have a medium clay content. Typically, the surface layer is dark brown loam 4 inches thick. The underlying layers, to a depth of 62 inches or more, are gray and have brown mottles. These layers are about 15 to 30 inches thick. Individual layers commonly are sandy clay loam, clay loam, and sandy loam.

Muckalee soils have a low clay content. Typically, the surface layer is dark grayish brown loam 5 inches thick. The underlying layers, to a depth of 62 inches or more, are mainly gray. These layers are about 10 to 30 inches thick. Individual layers are sandy clay loam, sandy loam, loamy sand, or sand. Except for thin strata, the sandy layers are below a depth of 40 inches.

Minor soils in this unit are in the Meggett series. They are poorly drained and are on the flood plain with the major soils.

The main concern in management is wetness and control of flooding. The soils are well suited, however, to the commonly grown pine. The flooding hazard and the seasonal high water table severely limit farming and most nonfarm uses of the soils.

2. Meggett-Muckalee

Poorly drained soils that have a loamy surface layer and a clayey subsoil or poorly drained soils that mainly are loamy throughout, on flood plains and stream terraces

This unit consists of poorly drained, nearly level soils that are mainly on the long, broad flood plains near Chickasawhatchee and Spring Creeks and on the more narrow flood plains of branches of these creeks. In places, they are on stream terraces of these creeks and

branches. Slope is 0 to 2 percent. The streams are perennial and have a winding channel, and frequently overflow in winter and spring. The soils in this unit are mainly wooded, and the major trees are sweetgum, blackgum, bay, cypress, poplar, and water oak. Other than a few roads, there is little manmade development. The degree of visual diversity of the landscape is low.

This map unit makes up about 1 percent of Calhoun County. Meggett soils make up about 44 percent of the unit; Muckalee soils, about 31 percent; and minor soils, about 25 percent.

Typically, the Meggett soils have a surface layer of dark grayish brown loam 4 inches thick. The subsoil extends to a depth of 62 inches or more. It is predominantly gray or light gray clay.

Muckalee soils mainly are loamy throughout. Typically, the surface layer is dark grayish brown loam 5 inches thick. The underlying layers, to a depth of 62 inches or more, are mainly gray. These layers are about 10 to 30 inches thick. Individual layers are sandy clay loam, sandy loam, loamy sand, or sand. Except for thin strata the sandy layers are below a depth of 40 inches.

Minor soils in this unit are in the Herod series. They are poorly drained and are on the flood plain with the major soils.

The main concerns in management are wetness and control of flooding. The soils are well suited, however, to the commonly grown pine. The flooding hazard and the seasonal high water table severely limit farming and most nonfarm uses of the unit.

Nearly level soils on uplands

Two units in Calhoun County are made up of poorly drained and moderately well drained soils on uplands. The poorly drained soils are mainly grayish throughout and have a loamy surface layer and a clayey subsoil, or they have a sandy surface layer, a sandy subsurface layer, and a loamy subsoil. The moderately well drained soils have a grayish, sandy surface layer; a brownish, sandy subsurface layer; and a predominantly brownish, loamy subsoil that is mottled. Slope is 0 to 2 percent.

3. Grady-Rains-Goldsboro

Poorly drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil, in depressions and drainageways, and moderately well drained soils that have a sandy surface layer and a loamy subsoil, in low-lying smooth areas

This unit consists of poorly drained, nearly level soils in depressions and drainageways and moderately well drained, nearly level soils in slightly higher areas. Slope is 0 to 2 percent. Individual areas are in the vicinity of Leary and between Arlington and Williamsburg. Soils in the depressions are seasonally ponded from winter to early summer. The soils in this unit are mainly in sweetgum, blackgum, bay, cypress, and water oak; some are in pine trees. Other than roads and utilities, there is little manmade development. The degree of visual diversity of the landscape is low.

This unit makes up about 3 percent of Calhoun County. Grady soils make up about 45 percent of the unit; Rains soils, about 20 percent; Goldsboro soils, about 15 percent; and minor soils, about 20 percent.

Grady soils are poorly drained and have mainly a clayey subsoil. Typically, the surface layer is very dark gray loam 4 inches thick. The subsoil extends to a depth of about 68 inches. It dominantly is light gray clay that is mottled yellowish brown.

Rains soils are poorly drained and have a loamy subsoil. Typically, the surface layer is very dark gray loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 15 inches. The upper part is grayish brown, and the lower part is light brownish gray. The subsoil extends to a depth of 68 inches or more. It is predominantly light gray sandy clay loam that has brownish mottles.

Goldsboro soils are moderately well drained. Typically, the surface layer is dark gray loamy sand 7 inches thick. The subsurface layer is yellowish brown loamy sand and extends to a depth of 13 inches. The subsoil predominantly is sandy clay loam that extends to a depth of 65 inches or more. The upper part is mainly light yellowish brown, the middle part is light yellowish brown and has brownish and grayish mottles, and the lower part is light gray and has brownish and red mottles.

Minor soils in this unit are in the Norfolk, Ocilla, Orangeburg, Pelham, and Wagram series. Well drained Norfolk, Orangeburg, and Wagram soils are on uplands, adjacent to but higher than this map unit. Somewhat poorly drained Ocilla soils are in low-lying smooth areas near soils in depressions and drainageways. Poorly drained Pelham soils are in depressions, drainageways, and smooth areas.

The main concern of management for the soils is overcoming wetness. However, the soils are well suited to the commonly grown pine. The soils in depressions and near drainageways are severely limited for farming and most nonfarm uses. Those soils in slightly higher lying areas are well suited to farming if drained.

4. Goldsboro-Grady-Rains

Moderately well drained soils that have a sandy surface layer and a loamy subsoil, on low-lying smooth areas, and poorly drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil, in depressions and drainageways

This unit consists of moderately well drained, nearly level soils in the slightly higher areas and poorly drained, nearly level soils in depressions and drainageways. Slope is 0 to 2 percent. Individual areas are in the northeastern part of the county, near Leary, Morgan, Arlington, and Williamsburg. Soils in the depressions are seasonally ponded from winter to early summer. Streams

throughout the rest of the unit are intermittent. The slightly higher soils are used for farming, beef cattle and hogs, and woodland and pasture. The soils in depressions and drainageways are mainly in woodland of sweetgum, blackgum, bay, cypress, and water oak and some pine trees. Other than roads, utilities, and a few farmsteads, there is little manmade development in the area. The degree of visual diversity of the landscape is moderate.

This unit makes up about 7 percent of Calhoun County. Goldsboro soils make up about 40 percent of the unit; Grady soils, about 25 percent; Rains soils, about 15 percent; and minor soils, about 20 percent.

Goldsboro soils are moderately well drained. Typically, the surface layer is dark gray loamy sand 7 inches thick. The subsurface layer is yellowish brown loamy sand and extends to a depth of 13 inches. The subsoil predominantly is sandy clay loam that extends to a depth of 65 inches or more. The upper part is mainly light yellowish brown, the middle part is light yellowish brown and has brownish and grayish mottles, and the lower part is light gray and has brownish and red mottles.

Grady soils are poorly drained and have mainly a clayey subsoil. Typically, the surface layer is very dark gray loam 4 inches thick. The subsoil extends to a depth of about 68 inches. It is dominantly light gray clay that is mottled yellowish brown.

Rains soils are poorly drained and have a loamy subsoil. Typically, the surface layer is very dark gray loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 15 inches. The upper part is grayish brown, and the lower part is light brownish gray. The subsoil extends to a depth of 68 inches or more. It is predominantly light gray sandy clay loam that has brownish mottles.

Minor soils in this unit are in the Norfolk, Ocilla, Orangeburg, Pelham, and Wagram series. Well drained Norfolk, Orangeburg, and Wagram soils are on adjacent higher lying uplands. Somewhat poorly drained Ocilla soils are in low-lying smooth areas near depressions and drainageways. Poorly drained Pelham soils are in depressions, drainageways, and smooth areas.

The main concern of management is overcoming wetness. However, the soils are well suited to the commonly grown pine. The slightly higher soils are well suited to farming if drained. The soils in depressions and near drainageways are severely limited for farming and most nonfarm uses.

Nearly level to sloping soils on uplands

Five units in Calhoun County are made up of well drained soils and poorly drained soils on uplands. The well drained soils are on ridgetops and hillsides, and the poorly drained soils are in depressions. The soils on ridgetops and hillsides have a brownish, sandy or loamy surface layer and a predominantly brownish or reddish, loamy or clayey subsoil, or they have a brownish, sandy surface layer and thick, sandy subsurface layer and a brownish, loamy subsoil. The soils in depressions are mainly grayish throughout and have a loamy surface layer and a clayey subsoil. Slope is 0 to 12 percent.

5. Tifton-Norfolk-Grady

Well drained soils that have a sandy surface layer and a loamy subsoil, on ridgetops and hillsides, and poorly drained soils that have a loamy surface layer and a clayey subsoil, in depressions

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops; gently sloping soils on short hillsides; and poorly drained, nearly level soils in depressions. Slope is mainly 0 to 8 percent. Individual areas are mainly northeast of Dickey, northwest of Morgan, and northeast of Arlington. The soils in the depressions are mostly seasonally ponded from winter to early summer; some depressions are perennially ponded. Streams throughout the rest of the unit are intermittent. The soils on ridgetops and hillsides are used for farming. Beef cattle and hogs are the main kinds of livestock, but pecans, truck crops, pasture, and woodland are also important. Roads and farmsteads are common. The soils in depressions are mainly in baldcypress, blackgum, and water oak; some areas are dominated by water-tolerant shrubs and grasses. The degree of visual diversity of the landscape is moderate.

This unit makes up about 15 percent of Calhoun County. Tifton soils make up about 28 percent of the unit; Norfolk soils, about 25 percent; Grady soils, about 18 percent; and minor soils, about 29 percent.

Tifton soils are distinguished by a yellowish brown subsoil that contains plinthite. Typically, their surface layer is dark grayish brown loamy sand 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 65 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is mottled brownish, red, and white. Plinthite is below a depth of about 36 inches and makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are throughout the soil.

Norfolk soils have mainly a yellowish brown and brownish yellow subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 70 inches or more. The upper part is yellowish brown, and the lower part is brownish yellow and has brownish, red, and white mottles.

Grady soils have a predominantly grayish subsoil. Typically, the surface layer is very dark gray loam 4 inches thick. The subsoil extends to a depth of about 68 inches. It dominantly is light gray clay that is mottled yellowish brown.

Minor soils in this unit are in the Faceville, Goldsboro, Orangeburg, and Rains series. Well drained Faceville

and Orangeburg soils are on the ridgetops and hillsides with the major soils. Moderately well drained Goldsboro soils are in low-lying, smooth areas. Poorly drained Rains soils are in slight depressions or near drainageways.

The main concerns of management are controlling erosion on the very gently sloping and gently sloping soils and overcoming wetness on the nearly level soils in depressions. The soils on ridgetops and hillsides are well suited to most uses; the soils in depressions have a seasonally high water table and are severely limited for most uses.

6. Greenville-Faceville

Well drained soils that have a loamy surface layer and a clayey subsoil, on ridgetops and hillsides

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops and gently sloping and sloping soils on short hillsides. Slope is 0 to 12 percent. Individual areas are mainly northwest of Arlington, northeast of Edison, and in the vicinity of Leary and Williamsburg. Streams are intermittent. Water areas are few. The soils are used for farming, and beef cattle and hogs are the main kinds of livestock. They are also used for pasture and woodland. Roads and farmsteads are common. The degree of visual diversity of the landscape is moderate.

This unit makes up about 16 percent of Calhoun County. Greenville soils make up about 55 percent of the unit; Faceville soils, about 17 percent; and minor soils, about 28 percent.

Greenville soils are distinguished by a dark red, clayey subsoil. Typically, the surface layer is dark reddish brown sandy loam 7 inches thick. The subsoil is dark red sandy clay and extends to a depth of 65 inches or more.

Faceville soils have mainly a reddish clayey subsoil. Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 70 inches or more. The upper part is red, and the lower part is mottled red and brownish.

Minor soils in this unit are in the Carnegie, Grady, Orangeburg, Red Bay, and Tifton series. Well drained Carnegie, Orangeburg, Red Bay, and Tifton soils are on the ridgetops and hillsides with the major soils. Poorly drained Grady soils are in depressions.

The main concern of management is controlling erosion on the very gently sloping to sloping soils. The soils on ridgetops and the gently sloping soils on hillsides are well suited to most uses; however, the more sloping soils on hillsides are somewhat limited by slope.

7. Orangeburg-Red Bay-Norfolk

Well drained soils that have a sandy or loamy surface layer and a loamy subsoil, on ridgetops and hillsides

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops and gently sloping and sloping soils on short hillsides. Slope is 0 to 12 percent. Individual areas are throughout the eastern two-thirds of Calhoun County. Streams are intermittent; water areas are few. The soils are mostly used for farming, and beef cattle and hogs are the main kinds of livestock. Pasture and woodland are also important. Roads and farmsteads are common. The degree of visual diversity of the landscape is moderate.

This unit makes up about 29 percent of Calhoun County. Orangeburg soils make up about 47 percent of the unit; Red Bay soils, about 14 percent; Norfolk soils, about 13 percent; and minor soils, about 26 percent.

Orangeburg soils are characterized by a red subsoil. Typically, the surface layer is dark brown loamy sand 8 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, and the rest is red sandy clay loam.

Red Bay soils have a dark red subsoil. Typically, the surface layer is dark reddish brown sandy loam 8 inches thick. The subsoil is dark red sandy clay loam and extends to a depth of 65 inches or more.

Norfolk soils have a yellowish brown and brownish yellow subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 70 inches or more. The upper part is yellowish brown, and the lower part is brownish yellow and has brownish, red, and white mottles.

Minor soils in this unit are in the Goldsboro, Grady, Lucy, Tifton, and Wagram series. Well drained Lucy, Tifton, and Wagram soils are on the ridgetops and hillsides with the major soils. Moderately well drained Goldsboro soils are in low areas of uplands. Poorly drained Grady soils are in depressions.

The main concern of management is controlling erosion on the very gently sloping to sloping soils. The soils on ridgetops and the gently sloping soils on hillsides are well suited to most uses; however, the more sloping soils on hillsides are somewhat limited by slope.

8. Faceville-Greenville-Tifton

Well drained soils that have a loamy surface layer and a clayey subsoil or a predominantly sandy surface layer and a loamy subsoil, on ridgetops and hillsides

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops and gently sloping and sloping soils on short hillsides. Slope is 0 to 12 percent. Individual areas are mainly in the northwestern part of Calhoun County, in the vicinity of Williamsburg and Chickasawatchee Creek east of Leary. Streams are intermittent; water areas are few. The soils are mostly used for farming, and beef cattle and hogs are the main kinds of livestock. Pasture and woodland are also important. Roads and farmsteads are common. The degree of visual diversity of the landscape is moderate.

This unit makes up about 21 percent of Calhoun County. Faceville soils make up about 37 percent of the unit; Greenville soils, about 25 percent; Tifton soils, about 10 percent; and minor soils, about 28 percent.

Faceville soils are distinguished by a reddish, clayey subsoil. Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 70 inches or more. The upper part is red, and the lower part is red and brownish.

Greenville soils have a dark red, clayey subsoil. Typically, the surface layer is dark reddish brown sandy loam 7 inches thick. The subsoil is dark red sandy clay and extends to a depth of 65 inches or more.

Tifton soils have mainly a yellowish brown, loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 65 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is mottled brownish, red, and white. Plinthite is below a depth of about 36 inches and makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are throughout the soil.

Minor soils in this unit are in the Goldsboro, Grady, Norfolk, Orangeburg, Red Bay, and Rains series. Well drained Norfolk, Orangeburg, and Red Bay soils are on the ridgetops and hillsides with the major soils. Poorly drained Grady and Rains soils are in depressions and drainageways. Moderately well drained Goldsboro soils are in low-lying smooth areas.

The main concern of management is controlling erosion on the very gently sloping to sloping soils. The soils on ridgetops and the gently sloping soils on hillsides are well suited to most uses; however, the more sloping soils on hillsides are somewhat limited by slope.

9. Wagram-Norfolk-Orangeburg

Well drained soils that have a sandy surface layer or a sandy surface layer and thick, sandy subsurface layer and a loamy subsoil, on ridgetops

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops. Slope is 0 to 5 percent. The only area of this unit is to the north of Leary. Streams and water areas are few. The soils are used for farming, and beef cattle and hogs are the main kinds of livestock. They are also in pecans, pasture, and woodland. Other than roads and utilities, there is little manmade development. The degree of visual diversity of the landscape is moderate.

This unit makes up about 1 percent of Calhoun County. Wagram soils make up about 60 percent of the unit; Norfolk soils, about 15 percent; Orangeburg soils, about 10 percent; and minor soils, about 15 percent.

Wagram soils are brownish throughout the surface layer, thick subsurface layer, and subsoil. Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsurface layer is light yellowish brown loamy sand 17 inches thick. The subsoil extends to a depth of 68 inches or more. The upper few inches is yellowish brown sandy loam, and the rest is yellowish brown sandy clay loam and has brownish mottles.

Norfolk soils have a brownish surface layer and a brownish and yellowish subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 70 inches or more. The upper part is yellowish brown, and the lower part is brownish yellow and has brownish, red, and white mottles.

Orangeburg soils have a brownish surface layer and a predominantly red subsoil. Typically, the surface layer is dark brown loamy sand 8 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, and the rest is red sandy clay loam.

Minor soils in this unit are in the Lucy, Ocilla, Pelham, and Troup series. Well drained Lucy and Troup soils are on ridgetops with the major soils. Somewhat poorly drained Ocilla soils are in low-lying areas and slight depressions. Poorly drained Pelham soils are in smooth areas, in depressions, and near drainageways.

The main concern of management is increasing the available water capacity of the thick, sandy, surface soil. Controlling erosion is a concern on the very gently sloping soils that have a thin, sandy, surface layer. The soils in this unit are well suited to most nonfarm uses.

EARLY COUNTY

Nearly level soils on flood plains or low stream terraces

Two units in Early County are made up of poorly drained soils on flood plains or low stream terraces. Slope ranges from 0 to 2 percent. The soils on flood plains are loamy and predominantly gray throughout; those on low stream terraces have a loamy surface layer and a clayey subsoil that are predominantly gray.

1. Herod-Muckalee

Poorly drained soils that mainly are loamy throughout, on flood plains

This unit consists of poorly drained, nearly level soils that are mainly on the long, broad flood plains of Long Branch, Sawhatchee, and Kirkland Creeks and on the more narrow flood plains of branches of these watercourses. Slope is 0 to 2 percent. Most of the streams are perennial and have a winding channel, and they frequently overflow in winter and spring. The soils in this unit are mainly wooded and in sweetgum, blackgum, cypress, bay, poplar, and water oak. Other than roads and utilities, there is little manmade development. The degree of visual diversity of the landscape is low.

This unit makes up about 2 percent of Early County. Herod soils make up about 55 percent of the unit;

Muckalee soils about 30 percent; and minor soils, about 15 percent.

Herod soils have a medium clay content. Typically, the surface layer is dark brown loam 4 inches thick. The underlying layers, to a depth of 62 inches or more, are gray and have brown mottles. These layers are about 15 to 30 inches thick. Individual layers commonly are sandy clay loam, clay loam, and sandy loam.

Muckalee soils have a low clay content. Typically, the surface layer is dark grayish brown loam 5 inches thick. The underlying layers, to a depth of 62 inches or more, are mainly gray. These layers are about 10 to 30 inches thick. Individual layers are sandy clay loam, sandy loam, loamy sand, or sand. Except for thin strata, the sandy layers are below a depth of 40 inches.

Minor soils in this unit are in the Meggett series. They are poorly drained and are on the flood plain with the major soils.

The main concern in management is wetness and control of flooding. However, the soils are well suited to the commonly grown pine. The flooding hazard and the seasonal high water table severely limit farming and most nonfarm uses of the unit.

2. Meggett-Muckalee

Poorly drained soils that have a loamy surface layer and a clayey subsoil or poorly drained soils that mainly are loamy throughout, on flood plains and stream terraces

This unit consists of poorly drained, nearly level soils that are mainly on the long, broad flood plains of Spring and Dry Creeks and the more narrow flood plains of branches of these creeks. In places, it is on stream terraces along these creeks and branches. Slope is 0 to 2 percent. The streams are perennial and have a winding channel, and they frequently overflow in winter and spring. The soils in this unit are mainly in woodland of sweetgum, blackgum, bay, cypress, poplar, and water oak. Other than a few roads and utilities, there is little manmade development. The degree of visual diversity of the landscape is low.

This map unit makes up about 2 percent of Early County. Meggett soils make up about 50 percent of the unit; Muckalee soils, about 35 percent; and minor soils, about 15 percent.

Meggett soils have a clayey subsoil. Typically, the surface layer is dark grayish brown loam 4 inches thick. The subsoil extends to a depth of 62 inches or more. It is predominantly gray or light gray clay.

Muckalee soils are mainly loamy throughout. Typically, the surface layer is dark grayish brown loam 5 inches thick. The underlying layers, to a depth of 62 inches or more, are mainly gray sandy clay loam, sandy loam, loamy sand, or sand. These layers are about 10 to 30 inches thick. Except for thin strata, the sandy layers are below a depth of 40 inches.

Minor soils in this unit are in the Herod series. They are poorly drained and are on the flood plain with the major soils.

The main concern in management is wetness and control of flooding. However, the soils are well suited to the commonly grown pine. The flooding hazard and the seasonal high water table severely limit farming and most nonfarm uses of the unit.

Nearly level soils on high stream terraces and on flood plains

One unit in Early County is made up of moderately well drained and well drained soils on high stream terraces and excessively drained soils on flood plains. The moderately well drained soils have a predominantly brownish, loamy surface layer; a predominantly mottled, clayey subsoil; and predominantly brownish, loamy underlying material. The well drained soils have a brownish, loamy surface layer; a reddish subsoil that is predominantly clayey; and brownish loamy and sandy underlying material. The excessively drained soils are mainly brownish and sandy throughout. Slope is 0 to 2 percent.

3. Kolomoki-Hornsville-Buncombe

Well drained or moderately well drained soils that have a loamy surface layer and a predominantly clayey subsoil, on high stream terraces, and excessively drained soils that are predominantly sandy throughout, on flood plains

This unit consists of nearly level soils between the Chattahoochee River and the moderately steep soils on the adjoining escarpment. The well drained and moderately well drained soils are on the high stream terrace, and the excessively drained soils are on long, narrow flood plains. Slope is 0 to 2 percent. Streams are intermittent, and water areas are few. The soils on the terrace are used for farming, and beef cattle are the main kind of livestock. Pasture and woodland are also important, and the soils on the flood plain are mainly wooded. Other than a few small urban areas and the development associated with the river, there are few manmade features. The degree of visual diversity of the landscape is moderate.

This unit makes up about 3 percent of Early County. Kolomoki soils make up about 22 percent of the unit; Hornsville soils, about 18 percent; Buncombe soils, about 16 percent; and minor soils, about 44 percent.

Kolomoki soils are well drained. Typically, the surface layer is dark brown fine sandy loam 8 inches thick. The subsoil extends to a depth of 33 inches. The upper part is yellowish red clay, and the lower part is yellowish red sandy clay loam. The underlying material, to a depth of 65 inches or more, is strong brown sandy loam and sand.

Hornsville soils are moderately well drained. Typically, the surface layer is predominantly dark grayish brown

fine sandy loam 8 inches thick. The subsoil extends to a depth of 60 inches. The upper few inches is yellowish red sandy clay that has a few light gray mottles; the middle part is mottled reddish, brownish, and grayish sandy clay and clay; and the lower part is light gray sandy clay that has red and brown mottles. The underlying material, to a depth of 68 inches, is light yellowish brown sandy loam that has light gray mottles.

Buncombe soils are excessively drained. Typically, the surface layer is brown loamy sand 8 inches thick. The underlying brownish material is stratified to a depth of 65 inches or more. The upper layers are loamy sand, and the lower layer is sandy loam that has thin strata of loamy sand.

Minor soils in this unit are in the Meggett and Riverview series and Urban land. Poorly drained Meggett soils are on the flood plain at the eastern edge of the terrace. Well drained Riverview soils and Urban land are on the terrace with Kolomoki and Hornsville soils.

The main concerns of management are overcoming wetness on the slightly lower lying soils on the terrace and controlling flooding on the soils on the flood plain. The flooding hazard severely limits most uses of the unit.

Nearly level soils on uplands

Two units in Early County are made up of poorly drained and moderately well drained soils on uplands. The poorly drained soils are mainly grayish throughout and have a loamy surface layer and a clayey subsoil, or they have a sandy surface layer and a sandy subsurface layer and a loamy subsoil. The moderately well drained soils have a grayish, sandy surface layer and a brownish, sandy subsurface layer and a predominantly brownish, loamy subsoil that is mottled. Slope is 0 to 2 percent.

4. Goldsboro-Grady-Rains

Moderately well drained soils that have a sandy surface layer and a loamy subsoil, in low-lying smooth areas, and poorly drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil, in depressions and drainageways

This unit consists of moderately well drained, nearly level soils in the slightly higher lying areas and poorly drained, nearly level soils in depressions and drainageways. Slope is 0 to 2 percent. Individual areas are mainly just north of Damascus and in the southwestern part of Early County. Soils in the depressions are seasonally ponded from winter to early summer. Streams throughout the rest of the unit are intermittent. The soils in the slightly higher areas are used for pasture and woodland. Farming is also important, and beef cattle and hogs are the main kinds of livestock. The soils in depressions and drainageways are mainly in woodland of sweetgum, blackgum, bay, cypress, and water oak; some are in pine trees. Other than roads, utilities, and a few farmsteads, there is little manmade development. The degree of visual diversity of the landscape is moderate.

This unit makes up about 10 percent of Early County. Goldsboro soils make up about 36 percent of the unit; Grady soils, about 27 percent; Rains soils, about 13 percent; and minor soils, about 24 percent.

Goldsboro soils are moderately well drained. Typically, the surface layer is dark gray loamy sand 7 inches thick. The subsurface layer is yellowish brown loamy sand and extends to a depth of 13 inches. The subsoil predominantly is sandy clay loam that extends to a depth of 65 inches or more. The upper part is mainly light yellowish brown, the middle part is light yellowish brown and has brownish and grayish mottles, and the lower part is light gray and has brownish and red mottles.

Grady soils are poorly drained and have mainly a clayey subsoil. Typically, the surface layer is very dark gray loam 4 inches thick. The subsoil extends to a depth of 68 inches. It is dominantly light gray clay that is mottled yellowish brown.

Rains soils are poorly drained and have a loamy subsoil. Typically, the surface layer is very dark gray loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 15 inches. The upper part is grayish brown, and the lower part is light brownish gray. The subsoil extends to a depth of 68 inches or more. It is predominantly light gray sandy clay loam that has brownish mottles.

Minor soils in this unit are in the Norfolk, Ocilla, Pelham, Tifton, and Wagram series. Somewhat poorly drained Ocilla soils are in low-lying smooth areas near depressions and drainageways. Poorly drained Pelham soils are in depressions, drainageways, and smooth areas. Well drained Norfolk, Wagram, and Tifton soils are on adjacent, higher lying uplands.

The main concern of management is overcoming wetness. However, the soils are well suited to the commonly grown pine. The soils in slightly higher areas are well suited to farming if drained. The soils in depressions and near drainageways are severely limited for farming and most nonfarm uses.

5. Grady-Rains-Goldsboro

Poorly drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil, in depressions and drainageways, and moderately well drained soils that have a sandy surface layer and a loamy subsoil, in low-lying smooth areas

This unit consists of poorly drained, nearly level soils in depressions and drainageways and moderately well drained, nearly level soils in slightly higher areas. Slope is 0 to 2 percent. Individual areas are just east of Damascus and in the vicinity of Blakely. Soils in the depressions are seasonally ponded from winter to early summer. The soils in this unit are mainly in woodland of sweetgum, blackgum, bay, cypress, and water oak; some

are in pine trees. Other than a few roads and utilities, there is little manmade development of the soils. The degree of visual diversity of the landscape is low.

This unit makes up about 2 percent of Early County. Grady soils make up about 40 percent of the unit; Rains soils, about 30 percent; Goldsboro soils, about 10 percent; and minor soils, about 20 percent.

Grady soils are poorly drained and have mainly a clayey subsoil. Typically, the surface layer is very dark gray loam 4 inches thick. The subsoil extends to a depth of 68 inches. It dominantly is light gray clay that is mottled yellowish brown.

Rains soils are poorly drained and have a loamy subsoil. Typically, the surface layer is very dark gray loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 15 inches. The upper part is grayish brown, and the lower part is light brownish gray. The subsoil extends to a depth of 68 inches or more. It is predominantly light gray sandy clay loam that has brownish mottles.

Goldsboro soils are moderately well drained. Typically, the surface layer is dark gray loamy sand 7 inches thick. The subsurface layer is yellowish brown loamy sand and extends to a depth of 13 inches. The subsoil predominantly is sandy clay loam that extends to a depth of 65 inches or more. The upper part is mainly light yellowish brown, the middle part is light yellowish brown and has brownish and grayish mottles, and the lower part is light gray and has brownish and red mottles.

Minor soils in this unit are in the Norfolk, Ocilla, Pelham, and Wagram series. Well drained Norfolk and Wagram soils are on adjacent, higher lying uplands. Somewhat poorly drained Ocilla soils are in low-lying smooth areas near depressions and drainageways. Poorly drained Pelham soils are in depressions, drainageways, and smooth areas.

The main concern of management is overcoming wetness. However, the soils are well suited to the commonly grown pine. The soils in depressions and near drainageways are severely limited for farming and most nonfarm uses. Those soils in slightly higher areas are well suited to farming if drained.

Nearly level to sloping soils on uplands

Six units in Early County are made up of well drained soils and poorly drained soils on uplands. The well drained soils are on ridgetops and hillsides, and the poorly drained soils are in depressions. The soils on ridgetops and hillsides have a brownish, sandy or loamy surface layer and a predominantly brownish or reddish, loamy or clayey subsoil or a brownish, sandy surface layer and a thick, sandy subsurface layer and a brownish, loamy subsoil, or they are brownish and sandy throughout. The soils in depressions are mainly grayish throughout and have a loamy surface layer and a clayey subsoil. Slope is 0 to 12 percent.

6. Greenville-Faceville

Well drained soils that have a loamy surface layer and a clayey subsoil, on ridgetops and hillsides

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops and gently sloping and sloping soils on short hillsides. Slope is 0 to 12 percent. Individual areas are in the vicinity of Blakely and to the north. Streams are intermittent, and water areas are few. The soils are used for farming, and beef cattle and hogs are the main kinds of livestock. Roads and farmsteads are common. Pasture and woodland are also important. The degree of visual diversity of the landscape is moderate.

This unit makes up about 8 percent of Early County. Greenville soils make up about 52 percent of the unit; Faceville soils, about 15 percent; and minor soils, about 33 percent.

Greenville soils have a dark red, clayey subsoil. Typically, the surface layer is dark reddish brown sandy loam 7 inches thick. The subsoil is dark red sandy clay and extends to a depth of 65 inches or more.

Faceville soils have mainly a reddish, clayey subsoil. Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 70 inches or more. The upper part is red, and the lower part is mottled brown, red, and brownish.

Minor soils in this unit are in the Grady, Marlboro, Orangeburg, Red Bay, and Tifton series. Poorly drained Grady soils are in depressions. Well drained Red Bay, Orangeburg, Marlboro, and Tifton soils are on the ridgetops and hillsides with the major soils.

The main concern of management is controlling erosion on the very gently sloping to sloping soils. The soils on ridgetops and the gently sloping soils on hillsides are well suited to most uses; however, the more sloping soils on hillsides are somewhat limited by slope.

7. Orangeburg-Red Bay-Norfolk

Well drained soils that have a sandy or loamy surface layer and a loamy subsoil, on ridgetops and hillsides

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops and gently sloping and sloping soils on short hillsides. Slope is 0 to 12 percent. Individual areas are extensive in the vicinity of Dry Creek and Spring Creek. Less extensive areas are in the western part of Early County several miles from the Chattahoochee River. Streams are intermittent, and water areas are few. The soils are used for farming, and beef cattle and hogs are the main kinds of livestock. Roads and farmsteads are common. Pasture and woodland are also important. The degree of visual diversity of the landscape is moderate.

This unit makes up about 11 percent of Early County. Orangeburg soils make up about 50 percent of the unit;

Red Bay soils, about 20 percent; Norfolk soils, about 10 percent; and minor soils, about 20 percent.

Orangeburg soils have mainly a red subsoil. Typically, the surface layer is dark brown loamy sand 8 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, and the rest of the subsoil is red sandy clay loam.

Red Bay soils have a dark red subsoil. Typically, the surface layer is dark reddish brown sandy loam 8 inches thick. The subsoil is dark red sandy clay loam and extends to a depth of 65 inches or more.

Norfolk soils have mainly a yellowish brown and brownish yellow subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 70 inches or more. The upper part is yellowish brown, and the lower part is brownish yellow and has brownish, red, and white mottles.

Minor soils in this unit are in the Faceville, Goldsboro, Lucy, Tifton, and Wagram series. Well drained Faceville, Lucy, Tifton, and Wagram soils are on the ridgetops and hillsides with the major soils. Moderately well drained Goldsboro soils are in low-lying areas of uplands.

The main concern of management is controlling erosion on the very gently sloping to sloping soils. The soils on ridgetops and the gently sloping soils on hillsides are well suited to most uses; however, the more sloping soils on hillsides are somewhat limited by slope.

8. Faceville-Greenville-Tifton

Well drained soils that have a loamy surface layer and a clayey subsoil or a predominantly sandy surface layer and a loamy subsoil, on ridgetops and hillsides

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops and gently sloping and sloping soils on short hillsides. Slope is 0 to 12 percent. Individual areas are to the north and west of Blakely and near Arlington. Streams are intermittent and water areas are few. The soils are used for farming, and beef cattle and hogs are the main kinds of livestock. Roads and farmsteads are common. Pasture and woodland are also grown. The degree of visual diversity of the landscape is low.

This unit makes up about 13 percent of Early County. Faceville soils make up about 35 percent of the unit; Greenville soils, about 20 percent; Tifton soils, about 15 percent; and minor soils, about 30 percent.

Faceville soils have mainly a reddish, clayey subsoil. Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 70 inches or more. The upper part is red, and the lower part is mottled red and brownish.

Greenville soils have a dark red, clayey subsoil. Typically, the surface layer is dark reddish brown sandy loam 7 inches thick. The subsoil is dark red sandy clay and extends to a depth of 65 inches or more.

Tifton soils have mainly a yellowish brown, loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 65 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is mottled brownish, red, and white. Plinthite is below a depth of about 36 inches and ranges from 5 to 15 percent in the lower part of the subsoil. Nodules of ironstone are throughout the soil.

Minor soils in this unit are in the Grady, Marlboro, Norfolk, and Orangeburg series. Well drained Norfolk, Orangeburg, and Marlboro soils are on the ridgetops and hillsides with the major soils. Poorly drained Grady soils are in depressions.

The main concern of management is controlling erosion on the very gently sloping to sloping soils. The soils on ridgetops and the gently sloping soils on hillsides are well suited to most uses; however, the more sloping soils on hillsides are somewhat limited by slope.

9. Tifton-Norfolk-Grady

Well drained soils that have a sandy surface layer and a loamy subsoil, on ridgetops and hillsides, and poorly drained soils that have a loamy surface layer and a clayey subsoil, in depressions

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops; well drained, gently sloping soils on short hillsides; and poorly drained, nearly level soils in depressions. Slope is 0 to 8 percent. Individual areas are extensive in the southwestern and eastern parts of Early County. Less extensive areas are throughout the rest of the county. The soils in the depressions are seasonally ponded from winter to early summer; some of the depressions are perennially ponded. Streams throughout the rest of the unit are intermittent. The soils on ridgetops and hillsides are used for farming, and beef cattle and hogs are the main kinds of livestock. Pecans, truck crops, pasture, and woodland are also important. Roads and farmsteads are common. The soils in depressions are mainly in baldcypress, blackgum, and water oak; but some areas are dominated by water-tolerant shrubs and grasses. The degree of visual diversity of the landscape is moderate.

This unit makes up about 40 percent of Early County. Tifton soils make up about 30 percent of the unit; Norfolk soils, about 25 percent; Grady soils, about 15 percent; and minor soils, about 30 percent.

Tifton soils have mainly a yellowish brown subsoil that contains plinthite. Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 65 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is mottled brownish,

red, and white. Plinthite is below a depth of about 36 inches and makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are throughout the soil.

Norfolk soils have mainly a yellowish brown and brownish yellow subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 70 inches or more. The upper part is yellowish brown, and the lower part is brownish yellow and has brownish, red, and white mottles.

Grady soils have a predominantly grayish subsoil. Typically, the surface layer is very dark gray loam 4 inches thick. The subsoil extends to a depth of 68 inches. It dominantly is light gray clay that is mottled yellowish brown.

Minor soils in this unit are in the Esto, Faceville, Goldsboro, Nankin, Ocilla, Orangeburg, and Wagram series. Well drained Esto, Faceville, Nankin, Orangeburg, and Wagram soils are on the ridgetops and hillsides with the major soils. Moderately well drained Goldsboro soils and somewhat poorly drained Ocilla soils are in low-lying smooth areas or in slight depressions.

The main concerns of management are controlling erosion on the very gently sloping and gently sloping soils and overcoming wetness on the nearly level soils in depressions. The soils on ridgetops and hillsides are well suited to most uses. The soils in depressions have a seasonally high water table and are severely limited for most uses.

10. Troup-Wagram-Lakeland

Well drained soils that have a sandy surface layer and thick, sandy subsurface layer and a loamy subsoil and excessively drained soils that are sandy throughout, on ridgetops and hillsides

This unit consists of well drained and excessively drained, nearly level and very gently sloping soils on ridgetops and gently sloping and sloping soils on short hillsides. Slope is 0 to 12 percent. Individual areas are in the western part of Early County near the Chattahoochee River. Streams are intermittent, and water areas are few. The soils are used mainly for woodland. Some areas are farmed, and beef cattle and hogs are the main kinds of livestock. Pasture is also grown. Other than a few roads and utilities, there is little manmade development. The degree of diversity of the landscape is low.

This unit makes up about 8 percent of Early County. Troup soils make up about 33 percent of the unit; Wagram soils, about 22 percent; Lakeland soils, about 16 percent; and minor soils about 29 percent.

Troup soils have a sandy subsurface layer that extends to a depth of 40 inches or more. Typically, the surface layer is brown sand 8 inches thick. The subsurface layer of sand typically extends to a depth of 62 inches. The upper part is yellowish brown, the middle part is light yellowish brown, and the lower part is pale brown. The subsoil extends to a depth of 78 inches or more. The upper few inches is light yellowish brown sandy loam, and the rest is mottled brownish sandy clay loam.

Wagram soils have a sandy subsurface layer that extends to a depth of 20 to 40 inches. Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsurface layer is light yellowish brown loamy sand 17 inches thick. The subsoil extends to a depth of 68 inches or more. The upper few inches is yellowish brown sandy loam, and the rest is yellowish brown sandy clay loam that has brownish mottles.

Lakeland soils are sandy throughout. Typically, the surface layer is dark grayish brown sand 6 inches thick. The underlying layers are sand to a depth of 82 inches or more. The upper part is yellowish brown, the middle part is light yellowish brown, and the lower part is pale brown and has pockets of white sand.

Minor soils in this unit are in the Americus, Lucy, Norfolk, Ocilla, Orangeburg, Pelham, and Red Bay series. Well drained Lucy, Norfolk, Orangeburg, and Red Bay soils and the somewhat excessively drained Americus soils are on ridgetops and short hillsides with the major soils. Somewhat poorly drained Ocilla soils are in low-lying areas and in slight depressions. Poorly drained Pelham soils are in smooth areas and in depressions and along drainageways.

The main concern of management is increasing available water capacity. The soils in this unit are well suited to most nonfarm uses.

11. Wagram-Norfolk-Orangeburg

Well drained soils that have a sandy surface layer or a sandy surface layer and thick, sandy subsurface layer and a loamy subsoil, on ridgetops

This unit consists of well drained, nearly level and very gently sloping soils on smooth and convex ridgetops. Slope is 0 to 5 percent. Individual areas are southeast of Arlington. Streams are intermittent, and there are a few water areas. The soils are used for farming, and beef cattle and hogs are the main kinds of livestock. Pecans, pasture, and woodland are also grown. Other than roads, there is little manmade development. The visual diversity of the landscape is low.

This unit makes up about 1 percent of Early County. Wagram soils make up about 60 percent of the unit; Norfolk soils, about 15 percent; Orangeburg soils, about 10 percent; and minor soils about 15 percent.

Wagram soils are brownish throughout the surface layer, the thick subsurface layer, and the subsoil. Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsurface layer is light yellowish brown loamy sand 17 inches thick. The subsoil extends to a depth of 68 inches or more. The upper few inches is yellowish brown sandy loam, and the rest is

yellowish brown sandy clay loam and has brownish mottles.

Norfolk soils have a brownish surface layer and a brownish and yellowish subsoil. Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 70 inches or more. The upper part is yellowish brown, and the lower part is brownish yellow and has brownish, red, and white mottles.

Orangeburg soils have a brownish surface layer and a predominantly red subsoil. Typically, the surface layer is dark brown loamy sand 8 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, and the rest is red sandy clay loam.

Minor soils in this unit are in the Lucy, Pelham, Ocilla, and Troup series. Well drained Lucy and Troup soils are on ridgetops. Somewhat poorly drained Ocilla soils are in low-lying areas and in slight depressions. Poorly drained Pelham soils are in smooth areas and in depressions and along drainageways.

The main concern of management is increasing the available water capacity of the soil that has a thick, sandy surface layer. Controlling erosion is a concern on the very gently sloping soils that have a thin, sandy surface layer. The soils in this unit are well suited to most nonfarm uses.

Broad Land Use Considerations

Considerable acreage in the survey area is being used as cropland, pasture, and woodland. The general soil map can be used for broad planning, but it cannot be used to locate the site for a specific structure. In general, the soils that are well suited to cultivated crops also are well suited to urban development. Their excellence as farmland should not be overlooked in planning. The data about specific soils can be helpful in planning future land use patterns. Interpretations made from the general soil map for broad land use planning are specific for each county. The following broad land use considerations, however, apply to the entire survey area.

Many of the soils on uplands in the survey area and on the high terrace in Early County are used for cultivated crops and pasture. Most of these soils are nearly level to gently sloping and well drained or are nearly level and moderately well drained, and they are well suited to farming. Some of the soils have low available water capacity, a severe hazard of erosion, strong or moderately steep slopes, slow or moderately slow permeability, or a seasonally high water table. These soils are only moderately suited or poorly suited to farming. Most of the soils on flood plains are poorly drained and in woodland. They are poorly suited to farming.

Part of the survey area is used for woodland. The soils are dominantly moderately suited or well suited to the production of trees.

About two-thirds of the soils in the survey area are on ridgetops and hillsides of uplands. They commonly are well drained and well suited to nonfarm use. The rest of the soils are on flood plains and low stream terraces, in upland depressions, and in low-lying areas of uplands. They commonly are less well drained, are seasonally wet, and are only moderately suited or poorly suited to nonfarm use.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. A soil is well suited if it has favorable properties, moderately suited if special planning and management are needed for satisfactory performance, and poorly suited if properties are unfavorable. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Tifton loamy sand, 2 to 5 percent slopes, is one of several phases in the Tifton series.

Some map units are made up of two or more major soils. These map units are called soil complexes, soil associations, or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Nankin-Esto sandy loams, 2 to 5 percent slopes, is an example.

A *soil association* is made up of two or more geographically associated soils that are shown as one unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar. Herod-Muckalee association is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Orangeburg, Esto and Troup soils, 12 to 25 percent slopes, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and suitabilities for many uses. The Glossary defines many of the terms used in describing the soils.

Soil Descriptions

AmB—Americus loamy sand, 0 to 5 percent slopes. This somewhat excessively drained, nearly level and very gently sloping soil is on broad ridgetops on uplands. Slopes are smooth and convex. Areas are 10 to 70 acres.

Typically, the surface layer is dark reddish brown loamy sand 8 inches thick. The subsoil extends to a depth of 72 inches or more. The upper few inches is dark reddish brown loamy sand, the middle part is dark red loamy sand, and the lower part is dark red sandy loam.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately rapid or rapid. The available water capacity is low. Tilth is good, and the soil can be worked throughout

a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lucy and Red Bay soils. Also included are small areas of a soil that is loamy sand throughout and has a red or yellowish red subsoil and areas of a soil that is sandy clay loam in the lower part of the subsoil.

This Americus soil is only moderately suited to farming because it has a low available water capacity. Returning crop residue to the soil is effective in retaining soil moisture. During dry seasons, high yields can be obtained by irrigation.

Loblolly pine and slash pine are moderately suited to this soil. Because this soil has a low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants commonly will increase survival of the seedlings. Because of the sandiness of the soil, the use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons will help overcome this limitation.

This soil is well suited to most urban use. Seepage is a limitation, however, for most sanitary facilities, and the soil is too sandy to be more than moderately suited to recreational development.

This soil is in capability subclass IIIs and woodland suitability group 3s.

AmC—Americus loamy sand, 5 to 8 percent slopes. This somewhat excessively drained, gently sloping soil is on ridgetops and short hillsides on uplands. Slopes commonly are smooth and convex. Areas are 10 to 50 acres.

Typically, the surface layer is dark reddish brown loamy sand 5 inches thick. The subsoil extends to a depth of 72 inches or more. The upper few inches is dark reddish brown loamy sand, the middle part is dark red loamy sand, and the lower part is dark red sandy loam.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately rapid or rapid, and the available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Lucy and Red Bay soils. Also included are small areas of a soil that is loamy throughout and has a red or yellowish red subsoil and small areas of a soil that is sandy clay loam in the lower part of the subsoil. In some cultivated fields, a few shallow gullies and rills are included in the mapping.

This Americus soil is only moderately suited to farming because it has a low available water capacity. Gully erosion is a hazard in fallow areas. Returning crop residue to the soil is effective in retaining soil moisture and decreasing the leaching of plant nutrients.

Slash pine and loblolly pine are moderately suited to this soil. Because this soil has a low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants commonly will increase survival of the seedlings. Because of the sandiness of the soil, the use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons will help overcome this limitation.

This soil is well suited to most urban use. Seepage is a limitation for most sanitary facilities, however, and the soil is too sandy to be more than moderately suited to recreational development.

This soil is in capability subclass IVs and woodland suitability group 3s.

AmD—Americus loamy sand, 8 to 12 percent slopes. This somewhat excessively drained, strongly sloping and moderately steep soil is on short hillsides on uplands. Slopes commonly are smooth and convex. Areas are 10 to 70 acres.

Typically, the surface layer is dark reddish brown loamy sand 5 inches thick. The subsoil extends to a depth of 72 inches or more. The upper few inches is dark reddish brown loamy sand, the middle part is dark red loamy sand, and the lower part is dark red sandy loam.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately rapid or rapid, and the available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Red Bay and Troup soils. Also included are small areas of a soil that is loamy throughout and has a red or yellowish red subsoil and a few small areas of a soil that has mottled sandy clay loam or clay in the lower part of the subsoil. In some cultivated fields, a few shallow gullies and rills are included in the mapping.

This Americus soil is poorly suited to farming because of its slope and low available water capacity. However, it is moderately suited to the common pasture grasses. Gully erosion is a severe hazard in fallow areas.

Slash pine and loblolly pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants commonly will increase survival of the seedlings. Because of the sandiness of the soil, the use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons will help overcome this limitation.

This soil is only moderately suited to most urban use and recreational development because of slope. Also, seepage is a limitation for most sanitary facilities. Slope and sandiness limit recreational development.

This soil is in capability subclass VIs and woodland suitability group 3s.

BmA—Buncombe loamy sand, 0 to 2 percent slopes. This excessively drained, nearly level soil is on long, narrow flood plains and commonly is adjacent to the Chattahoochee River. It is only rarely flooded because it is protected by stream navigation-control facilities and upstream hydroelectric dams. Slope is 0 to 2 percent. Areas are 10 to 100 acres.

Typically, the surface layer is brown loamy sand 8 inches thick. The underlying brownish material is stratified to a depth of 65 inches or more. The upper layers are loamy sand, and the lower layer is sandy loam.

This soil is low in natural fertility and organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is rapid, and available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are areas of a soil that has a sand surface layer. Also included are small areas of a soil that is loamy below a depth of 40 inches.

This Buncombe soil is only moderately suited to farming because it has a low available water capacity. Returning crop residue to the soil is effective in retaining soil moisture.

Loblolly pine is well suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Planting adapted drought-hardy species and reducing competing plants commonly will increase survival of the seedlings. Because of the sandiness of the soil, the use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons will help overcome this limitation.

This soil is only moderately suited to recreational development because it is too sandy. Flooding, though rare, severely restricts urban use.

This soil is in capability subclass IIIs and woodland suitability group 2s.

CaB2—Carnegie sandy loam, 3 to 5 percent slopes, eroded. This well drained, very gently sloping soil is on ridgetops and hillsides on uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are undulating. They are marked by rills and galled spots, shallow gullies, and an occasional deep gully. Areas are 5 to 40 acres.

Typically, the surface layer is dark yellowish brown sandy loam 6 inches thick. The subsoil is sandy clay that extends to a depth of 65 inches or more. The upper part is strong brown, the middle part is yellowish brown and has red and light gray mottles, and the lower part is mottled red, gray, and yellowish brown. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. Plinthite makes up 5 to 15 percent by volume of the soil below a depth of about 20 inches.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately slow, and available water capacity is medium. Runoff is rapid. Tilth is good. The root zone is deep.

Included with this soil in mapping are small areas of Esto, Nankin, and Tifton soils. Also included are eroded soils that have a sandy clay loam surface layer.

This Carnegie soil is moderately suited to farming because runoff is rapid and the landscape is somewhat gullied. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, reduce runoff and help to control erosion.

Slash pine and loblolly pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use; however, moderately slow permeability in the subsoil limits its use for septic tank absorption fields. This limitation can generally be overcome by special design and installation. This soil is only moderately suited to most recreational development because the subsoil has moderately slow permeability.

This soil is in capability subclass IIIe and woodland suitability group 2o.

CaC2—Carnegie sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides on uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are short and irregular. They contain rills, galled spots, and an occasional gully. Areas are 10 to 40 acres.

Typically, the surface layer is brown sandy loam 6 inches thick. The subsoil is sandy clay that extends to a depth of 65 inches or more. The upper part is strong brown, the middle part is strong brown and has red and very pale brown mottles, and the lower part is mottled yellowish brown, red, and light gray. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. Plinthite makes up 6 to 15 percent by volume of the soil below a depth of about 20 inches.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except

where the surface layer is limed. Permeability is moderately slow, and available water capacity is medium. Runoff is rapid. Tilth is good. The root zone is deep.

Included with this soil in mapping are small areas of Esto, Nankin, and Tifton soils. Also included are eroded soils that have a sandy clay loam surface layer and a few soils that are dark red in the upper part of the subsoil.

This Carnegie soil is poorly suited to farming because runoff is rapid and slopes are somewhat gullied, short, and irregular. It is, however, moderately suited to hay and pasture. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, reduce runoff and help to control erosion.

Slash pine and loblolly pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep erosion to a minimum.

This soil is well suited to most urban use; however, moderately slow permeability in the subsoil limits its use for septic tank absorption fields. This limitation can generally be overcome by special design and installation. This soil is only moderately suited to most recreational development because the subsoil has moderately slow permeability.

This soil is in capability subclass IVe and woodland suitability group 2o.

CaD2—Carnegie sandy loam, 8 to 12 percent slopes, eroded. This well drained, strongly sloping soil is on hillsides on uplands adjacent to drainageways and flood plains. The surface layer is a mixture of the original surface layer and the upper part of the subsoil. Slopes are short and irregular. They are marked by rills, galled spots, and an occasional gully. Areas are 5 to 40 acres.

Typically, the surface layer is brown sandy loam 6 inches thick. The subsoil is sandy clay that extends to a depth of 65 inches or more. The upper part is yellowish red; the middle part is yellowish red and has red, yellowish brown, and pale brown mottles; and the lower part is mottled red, yellowish brown, and gray. Nodules of ironstone are in the surface layer and in the upper and middle parts of the subsoil. Plinthite makes up 6 to 15 percent by volume of the soil below a depth of 20 inches.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately slow, and available water capacity is medium. Runoff is rapid. Tilth is good. The root zone is deep.

Included with this soil in mapping are areas of similar eroded soils in which the mottled part of the subsoil is nearer the surface than is common in the Carnegie soils. The surface layer is sandy clay loam in some places. These included soils make up as much as 40 percent of this map unit.

This Carnegie soil is poorly suited to farming because runoff is rapid and slopes are strong.

Slash pine and loblolly pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep erosion to a minimum.

This soil is only moderately suited to most urban use and recreational development because of slope or moderately slow permeability in the subsoil. Commonly, these limitations can be overcome by special design.

This soil is in capability subclass VIe and woodland suitability group 2o.

CnA—Clarendon loamy sand, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on low-lying uplands. Areas are 10 to 40 acres.

Typically, the surface layer is very dark grayish brown loamy sand 7 inches thick. The subsoil is mostly sandy clay loam and extends to a depth of 65 inches or more. The upper part is mainly light olive brown, the middle part is brownish yellow and has brownish and grayish nodules, and the lower part is mainly mottled brownish, grayish, and reddish. Plinthite is below a depth of about 25 inches and makes up 15 percent of the lower part of the subsoil.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. The available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep except in winter to early spring, when the water table is at a depth of 2 to 3 feet.

Included with this soil in mapping are a few small areas of Goldsboro, Norfolk, and Tifton soils.

This Clarendon soil is well suited to farming. It is somewhat restricted because of wetness, however, and drainage is needed in most places.

Slash pine, loblolly pine, and yellow-poplar are well suited to this soil, but seasonal wetness limits the use of conventional equipment. This limitation commonly can be overcome by using modified or special equipment or by performing operations during the drier seasons.

This soil is only moderately suited to most urban use and recreational development because it is wet. This limitation commonly can be reduced by drainage.

This soil is in capability subclass IIw and woodland suitability group 2w.

DuA—Duplin sandy loam, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on low-lying uplands. Areas are 10 to 50 acres.

Typically, the surface layer is brown sandy loam 8 inches thick. The subsoil is predominantly sandy clay that extends to a depth of 65 inches or more. The upper part is mainly light yellowish brown; the middle part is light yellowish brown and has brownish, grayish, and reddish mottles; and the lower part is mottled grayish, brownish, and reddish.

This soil is low in natural fertility and organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is moderately slow, and available water capacity is high. Tilth is good. The root zone is deep, except from winter to mid-spring when the water table is at a depth of 2.0 to 3.0 feet.

Included with this soil in mapping are a few small areas of Clarendon and Goldsboro soils.

This Duplin soil is well suited to farming. It is somewhat restricted by wetness, however, and drainage is needed in most places.

Slash pine and loblolly pine are well suited to this soil; however, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified or special implements or by performing operations during the drier seasons. Drainage and the use of adapted species will increase survival of the seedlings.

This soil is poorly suited to most urban use and only moderately suited to recreational development because it is wet. This limitation can be reduced by drainage.

This soil is in capability subclass IIw and woodland suitability group 2w.

EsD—Esto sandy loam, 8 to 15 percent slopes. This well drained, strongly sloping soil is on hillsides on uplands. Slopes commonly are short. Areas are 10 to 50 acres.

Typically, the surface layer is brown sandy loam 6 inches thick. The subsoil is clay and extends to a depth of 65 inches or more. The upper part is yellowish red, the middle part is yellowish red and has brown and gray mottles, and the lower part is reticulately mottled red, brown, and gray.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is slow, and available water capacity is medium. Runoff is rapid. Tilth is good. The root zone is deep.

Included with this soil in mapping are a few areas of Carnegie soils. Also included are areas of a soil that has a few small chert fragments on and in the surface layer and subsoil.

This Esto soil is poorly suited to farming because of slope. It is, however, moderately suited to hay and pasture.

Loblolly pine and slash pine are only moderately suited to this soil because the subsoil is predominantly firm and clayey. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is only moderately suited to most urban use and recreational development because of slope. The slow permeability and potential shrinking and swelling of the subsoil also limit many uses.

This soil is in capability subclass VIe and woodland suitability group 3o.

FeA—Faceville sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops of uplands. Areas are 10 to 150 acres.

Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 70 inches or more. It is mainly yellowish red, but the lower part has red and brown mottles. Small pockets of white kaolin clay are in the extreme lower part of the subsoil.

This soil is low in natural fertility and low in organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is moderate, and the available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of Greenville, Orangeburg, and Tifton soils. Also included are similar soils that have a loamy sand surface layer.

This Faceville soil is well suited to farming (fig. 1). During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help conserve moisture and maintain organic matter.

Loblolly pine and slash pine are moderately suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban use and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability class I and woodland suitability group 3o.

FeB—Faceville sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops of uplands. Slopes are smooth and convex. Areas are 10 to 100 acres.

Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 70 inches or more. The upper part is red, and the lower part is mottled red and brownish.

This soil is low in natural fertility and low in organic matter. It is strongly acid or very strongly acid except where the surface layer is limed. Permeability is moderate, and the available water capacity is medium.

Figure 1.—Peanuts and corn on Faceville sandy loam, 0 to 2 percent slopes. This is prime farmland, well suited to most crops.

Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of a soil that is eroded and has a sandy clay loam surface layer. Also included are a few small areas of Greenville, Orangeburg, and Tifton soils. In a few areas the surface layer is loamy sand.

This Faceville soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, using cover crops, including grasses and legumes in the cropping system, terracing, and contour farming reduce runoff and help control erosion.

Slash pine and loblolly pine are moderately suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability subclass IIe and woodland suitability group 3o.

FeC2—Faceville sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides of uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. It is marked by rills, galled spots, and an occasional deep gully. Most slopes are short. Areas are 10 to 40 acres.

Typically, the surface layer is brown sandy loam 5 inches thick. The subsoil extends to a depth of 65 inches or more. It is mainly red sandy clay, but the lower part is clay and has brownish mottles.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small intermingled areas of Greenville, Orangeburg, and Tifton soils.

This Faceville soil is well suited to farming; however, erosion is a moderate hazard if cultivated crops are

grown. Conservation tillage, using cover crops, including grasses and legumes in the cropping system, terracing, and contour farming reduce runoff and help control erosion.

Slash pine and loblolly pine are moderately suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability subclass IIIe and woodland suitability group 3o.

FeD—Faceville sandy loam, 8 to 12 percent slopes. This well drained, strongly sloping soil is on hillsides of uplands. Slopes commonly are short. Areas are 10 to 30 acres.

Typically, the surface layer is brown sandy loam 5 inches thick. The subsoil extends to a depth of 65 inches or more. It is yellowish red sandy clay except that the lower part also has brown mottles.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of Esto soils.

This Faceville soil is only moderately suited to farming because it has strong slope. If cultivated crops are grown, erosion is a severe hazard. Conservation tillage, using cover crops, including grasses and legumes in the cropping system, and contour farming reduce runoff and help control erosion.

Loblolly pine and slash pine are moderately suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is only moderately suited to most urban use and recreational development because it has strong slope. Also, the clayey subsoil is a limitation for a few uses.

This soil is in capability subclass IVe and woodland suitability group 3o.

GoA—Goldsboro loamy sand, 0 to 2 percent slopes. This moderately well drained, nearly level soil is in low areas of uplands. Areas are 10 to 50 acres.

Typically, the surface layer is dark gray loamy sand 7 inches thick. The subsurface layer is yellowish brown loamy sand 6 inches thick. The subsoil predominantly is sandy clay loam that extends to a depth of 65 inches or more. The upper part is mainly light yellowish brown, the middle part is light yellowish brown and has brownish and grayish mottles, and the lower part is light gray and has brownish and red mottles.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep, except from winter to mid-spring when the water table is at a depth of 2.0 to 3.0 feet.

Included with this soil in mapping are a few small areas of Norfolk and Ocilla soils. Small, narrow areas of somewhat poorly drained soils that are otherwise similar to Goldsboro soils are also included in mapping.

This Goldsboro soil is well suited to farming. It is somewhat limited by wetness, however, and drainage is needed in most places.

Slash pine and loblolly pine are well suited to this soil; however, seasonal wetness limits the use of conventional equipment. This limitation commonly can be overcome by using modified or special equipment or by performing operations during the drier seasons.

This soil is only moderately suited to most urban use and recreational development because it is wet. This limitation commonly can be reduced by drainage.

This soil is in capability subclass IIw and woodland suitability group 2w.

Gr—Grady loam. This poorly drained, nearly level soil is in depressions on uplands. It is seasonally ponded from winter to early summer (fig. 2). Slope is 0 to 2 percent. Areas are 5 to 100 acres.

Typically, the surface layer is very dark gray loam 4 inches thick. The subsoil extends to a depth of about 68 inches. It dominantly is light gray clay that is mottled yellowish brown.

This soil is low in natural fertility and medium in organic matter. It is very strongly acid throughout except where the surface layer is limed. Permeability is slow, and available water capacity is medium. Tilth is good during the drier seasons. The root zone is deep except from winter to early summer when the soil is ponded or the water table is near the surface.

Included with this soil in mapping are small areas of Rains soils. Also included are small areas of soils that are similar to Grady soils but have sandy clay loam at a depth of more than 50 inches. These similar soils are generally near the edge of the depression.

Baldcypress, blackgum, and water oak are the common trees; but in some areas water-tolerant shrubs and grasses are dominant. Ponding is the main limitation to equipment use and to seedling survival for other than the common water-tolerant trees.

This Grady soil is poorly suited to farming and to most urban use and recreational development because of ponding. Unless outlets are available for drainage, this limitation is difficult to overcome.

Figure 2.—Common water-tolerant vegetation on Grady loam. Seasonally ponded from winter to early summer, this soil is poorly suited to farming and nonfarm uses.

This soil is in capability subclass Vw and woodland suitability group 4w.

GsA—Greenville sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas are 10 to 150 acres.

Typically, the surface layer is dark reddish brown sandy loam 7 inches thick. The subsoil is dominantly dark red sandy clay that extends to a depth of 65 inches or more.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth, but it is subject to compaction and clodding if tilled when too wet. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few areas of Greenville sandy loam, 2 to 5 percent slopes. Also included are small areas of Faceville and Red Bay soils.

This Greenville soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help to conserve moisture and maintain the level of organic matter.

Loblolly pine and slash pine are moderately suited to this soil. There are no significant limitations for woodland use and management.

This soil is well suited to most urban use and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability class I and woodland suitability group 3o.

GsB—Greenville sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on broad ridgetops on uplands. Slopes are smooth and convex. Areas are 10 to 200 acres.

Typically, the surface layer is dark reddish brown sandy loam 7 inches thick. The subsoil is dark red sandy clay and extends to a depth of 65 inches or more.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth, but it is subject to compaction and clodding if tilled when too wet. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of Faceville and Red Bay soils. Also included are a few areas of similar soils that have a sandy clay loam surface layer.

This Greenville soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops including grasses and legumes, terracing, and contour farming reduce runoff and help control erosion (fig. 3).

Loblolly pine and slash pine are moderately suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability subclass IIe and woodland suitability group 3o.

GsC—Greenville sandy loam, 5 to 8 percent slopes. This well drained, gently sloping soil is on ridgetops and hillsides of uplands. Slopes commonly are smooth and convex. Areas are 10 to 70 acres.

Typically, the surface layer is dark reddish brown sandy loam 5 inches thick. The subsoil extends to a depth of 65 inches or more. It is dark red sandy clay that has brown mottles in the lower part.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is

Figure 3.—Newly constructed terraces and a vegetated waterway on Greenville sandy loam, 2 to 5 percent slopes, keep this prime farmland at a high level of production.

moderate, and available water capacity is medium. This soil has good tilth, but it is subject to compaction and clodding if tilled when wet. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of similar soils that are underlain at a depth of more than 36 inches with reticulately mottled, firm clay. Also included are areas where the surface layer is sandy clay loam that is eroded and a few areas of Faceville and Red Bay soils.

This Greenville soil is well suited to farming; however, erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops including grasses and legumes, terracing, and contour farming reduce runoff and help control erosion.

Loblolly pine and slash pine are moderately suited to this soil. Although there are no significant limitations for woodland uses, management performed on the contour will keep erosion to a minimum.

This soil is well suited to most urban use and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability subclass IIIe and woodland suitability group 3o.

GsD—Greenville sandy loam, 8 to 12 percent slopes. This well drained, strongly sloping soil is on hillsides of uplands. Slopes commonly are short. Areas are 10 to 50 acres.

Typically, the surface layer is dark reddish brown sandy loam 5 inches thick. The subsoil extends to a depth of 65 inches or more. It is dark red sandy clay and has brown mottles in the lower part.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface is limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth. Compaction and clodding are problems if the soil is tilled when wet. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of similar soils that are underlain at a depth of more than 36 inches by reticulately mottled clay that is firm. Also included are areas of a soil that has a sandy clay loam surface layer and is eroded. A few small areas of Esto and Faceville soils are included.

This Greenville soil is only moderately suited to farming because it has strong slope. Good tilth is easily maintained by returning crop residue to the soil. If cultivated crops are grown, erosion is a severe hazard. Conservation tillage, the use of cover crops including grasses and legumes, and contour farming reduce runoff and help control erosion.

Loblolly pine and slash pine are moderately suited to this soil. Although there are no significant limitations for woodland uses, management performed on the contour will keep soil erosion to a minimum.

This soil is only moderately suited to most urban use and recreational development because of the strong slope. Also, the clayey subsoil is a limitation for a few uses.

This soil is in capability subclass IVe and woodland suitability group 3o.

GvC2—Greenville sandy clay loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides of uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. The landscape is characterized by rills, galled spots, and an occasional deep gully. Most slopes are short. Areas are 5 to 30 acres.

Typically, the surface layer is reddish brown sandy clay loam 4 inches thick. The subsoil extends to a depth of 65 inches or more. It is dark red sandy clay that has brown mottles in the lower part.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is poor because of the sandy clay loam surface layer. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of uneroded Esto, Greenville, and Red Bay soils.

This Greenville soil is only moderately suited to farming because of the severe hazard of erosion. It is, however, well suited to hay and pasture. If cultivated crops are grown, erosion is a severe hazard. Conservation tillage, the use of cover crops including grasses and legumes, and contour farming reduce runoff and control erosion.

Loblolly pine and slash pine are moderately suited to this soil. Although there are no significant limitations for woodland uses, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban uses and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability subclass IVe and woodland suitability group 3o.

HM—Herod-Muckalee association. This map unit consists of poorly drained, nearly level soils on flood plains. It is frequently flooded for brief periods, mainly in winter and spring (fig. 4). Slope is 0 to 2 percent. Areas are 50 to 2,500 acres. This map unit is made up of Herod and Muckalee soils that are closely associated in a regular repeating pattern. Although the soils were not mapped separately, mapping was controlled adequately for soil interpretations to be made for the expected uses. Muckalee soils commonly are nearer the stream channel than Herod soils. Although in individual mapped areas the proportion of each soil varies, a typical area is about 60 percent Herod soils and 30 percent Muckalee soils.

Figure 4.—An inundated area of Herod-Muckalee association. These soils are frequently flooded in winter and spring. They are poorly suited to farming and severely limited for nonfarm uses.

Other similar soils make up about 10 percent of the association.

Typically, Herod soils have a surface layer of dark brown loam 4 inches thick. The underlying layers, to a depth of 62 inches or more, are gray and have brown mottles. These layers are about 15 to 30 inches thick. Individual layers are sandy clay loam, clay loam, and sandy loam.

Herod soils are medium in natural fertility and organic matter. They are strongly acid or medium acid in the upper part and medium acid to neutral in the lower part. Permeability is moderate, and available water capacity is high. Tilth is good during the drier season. The root zone is deep, except in winter and spring when the soil is flooded or the water table is near the surface.

Typically, Muckalee soils have a surface layer of dark grayish brown loam 5 inches thick. The underlying layers, to a depth of 62 inches or more, are mainly gray. These layers are about 10 to 30 inches thick. Individual layers are sand, loamy sand, sandy loam, or sandy clay loam.

Muckalee soils are medium in natural fertility and low or medium in organic matter. They are strongly acid or medium acid in the upper part and medium acid to neutral in the lower part. Permeability is moderate, and available water capacity is medium. Tilth is fair during the drier season. The root zone is deep, except in winter and spring when the soil is flooded or the water table is near the surface.

Most of this map unit is in natural woodland of sweetgum, water tupelo, cypress, and bay. These trees and loblolly pine and slash pine are well suited to the soils. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species will increase survival of the seedlings.

This map unit is poorly suited to farming and recreational development because of wetness and

flooding. These limitations also severely restrict urban use. They can be overcome only by extensive flood control and drainage.

This map unit is in capability subclass Vw. The woodland suitability group is 1w for the Herod soils and 2w for the Muckalee soils.

HvA—Hornsville fine sandy loam, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on stream terraces. It is rarely flooded. Areas are 15 to 70 acres.

Typically, the surface layer is predominantly dark grayish brown fine sandy loam 8 inches thick. The subsoil extends to a depth of 60 inches. The upper few inches are yellowish red sandy clay that has a few light gray mottles; the middle part is mottled reddish, brownish, and grayish sandy clay and clay; and the lower part is light gray sandy clay that has red and brown mottles. The underlying material, to a depth of 68 inches, is light yellowish brown sandy loam that has light gray mottles.

This soil is low in natural fertility and organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is moderately slow, and water capacity is medium. Tilth is good. The root zone is deep, except in winter to mid-spring when the water table is at a depth of 1.5 to 3.5 feet.

Included with this soil in mapping are small areas of Kolomoki and Riverview soils. Also included are a few small areas of soils that are less acid or less clayey in the subsoil.

This Hornsville soil is well suited to farming. It is, however, somewhat limited by wetness, and drainage is needed in most places.

Slash pine and loblolly pine are well suited to this soil. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified or special equipment or by performing operations during the drier seasons. Drainage and the use of adapted species will increase survival of the seedlings.

This soil is severely limited for most urban use by flooding or wetness. Prevention of stream overflow and drainage will overcome the limitations in most places. This soil is well suited to most recreational development.

This soil is in capability subclass IIw and woodland suitability group 2w.

KoA—Kolomoki fine sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on stream terraces near the Chattahoochee River. It is rarely flooded. Areas are 5 to 150 acres.

Typically, the surface layer is dark brown fine sandy loam 8 inches thick. The subsoil extends to a depth of 33 inches. The upper part is yellowish red clay, and the lower part is yellowish red sandy clay loam. The underlying material is strong brown sandy loam and sand to a depth of 65 inches or more.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Buncombe and Hornsville soils. A few small areas have slopes of as much as 5 percent. Also included are a few areas of soils similar to Kolomoki soils but with less clay in the subsoil.

This Kolomoki soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help to conserve moisture and maintain organic matter.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is severely limited for most urban use by flooding. This limitation can only be overcome by flood control. This soil is well suited to most recreational development.

This soil is in capability class I and woodland suitability group 2o.

LmB—Lucy loamy sand, 0 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on broad ridgetops of uplands. Slopes are smooth and convex. Areas are 10 to 70 acres.

Typically, the surface layer is dark grayish brown loamy sand 8 inches thick. The subsurface layer is loamy sand and extends to a depth of 29 inches. The upper part is brown, and the lower part is yellowish red. The subsoil extends to a depth of 80 inches or more. The upper part is yellowish red sandy loam, the middle part is yellowish red sandy clay loam, and the lower part is red sandy clay loam and has brownish mottles.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately rapid in the upper part and moderate in the lower part. Available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small intermingled areas of Orangeburg, Troup, and Wagram soils. Also included are a few small areas of a soil that is reddish loamy sand to a depth of about 48 inches.

This Lucy soil is only moderately suited to farming because it has low available water capacity. Returning crop residue to the soil is effective in retaining soil

moisture. During dry seasons, high yields can be obtained by irrigation.

Loblolly pine and slash pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants will increase survival of the seedlings. Because of the sandiness of the soil, the use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons will help overcome the equipment limitation.

This soil is well suited to most urban use, but seepage is a limitation for some sanitary facilities. Because it is too sandy, this soil is only moderately suited to most recreational development.

This soil is in capability subclass IIs and woodland suitability group 3s.

LmC—Lucy loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is mainly on hillsides on uplands. Slopes commonly are smooth and convex. Areas are 10 to 30 acres.

Typically, the surface layer is brown loamy sand 5 inches thick. The subsurface layer is loamy sand and extends to a depth of 29 inches. The upper part is yellowish brown, and the lower part is yellowish red. The subsoil extends to a depth of 80 inches or more. The upper few inches is red sandy loam, and the rest is red sandy clay loam that has yellowish brown mottles in the lower part.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately rapid in the upper part of the soil and moderate in the lower part. Available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small intermingled areas of Orangeburg and Troup soils.

This Lucy soil is only moderately suited to farming because it has low available water capacity. Returning crop residue to the soil is effective in retaining soil moisture.

Loblolly pine and slash pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants will increase survival of the seedlings. Because of the sandiness of the soil, the use of conventional equipment commonly is limited. Using special implements or performing operations during the wetter seasons will help overcome the equipment limitation.

This soil is well suited to most urban use, but seepage is a limitation for some sanitary facilities. Because it is too sandy, this soil is only moderately suited to recreational development.

This soil is in capability subclass IIIs and woodland suitability group 3s.

MaA—Marlboro sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas are 10 to 100 acres.

Typically, the surface layer is brown sandy loam 8 inches thick. The subsoil is predominantly sandy clay and extends to a depth of 65 inches or more. The upper part is yellowish brown, and the lower part is mottled brownish, reddish, and grayish.

This soil is low in natural fertility and organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of Faceville and Tifton soils. Soils similar to Marlboro soils except that they are 5 to 15 percent plinthite in the lower part of the subsoil are also included.

This Marlboro soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help conserve moisture and maintain the level of organic matter.

Loblolly pine and slash pine are moderately suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban use and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability class I and woodland suitability group 3o.

MaB—Marlboro sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops on uplands. Slopes commonly are smooth and convex. Areas are 10 to 70 acres.

Typically, the surface layer is brown sandy loam 8 inches thick. The subsoil is predominantly sandy clay and extends to a depth of 65 inches or more. It is mainly yellowish brown, and the lower part has reddish, brownish, and grayish mottles.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Faceville and Tifton soils. Also included are areas of soils similar to Marlboro soils that are 5 to 15 percent plinthite in the lower part of the subsoil. Small eroded spots are included in places.

This Marlboro soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops including grasses and legumes, terracing, and contour farming reduce runoff and help control erosion.

Slash pine and loblolly pine are moderately suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development. The clayey subsoil is a limitation for a few uses.

This soil is in capability subclass IIe and woodland suitability group 3o.

Me—Meggett loam. This poorly drained, nearly level soil is on stream terraces. It is frequently flooded from winter to mid-spring. Slope is 0 to 2 percent. Areas are 100 to 150 acres.

Typically, this soil has a surface layer of dark grayish brown loam 4 inches thick. The subsoil extends to a depth of 62 inches or more. It is predominantly gray or light gray clay.

This soil is medium in natural fertility and organic matter. It is strongly acid or medium acid in the upper part and medium acid to neutral in the lower part. Permeability is slow, and available water capacity is high. Tilth is fair during the drier seasons. The root zone is deep, except in winter and spring when the soil is flooded or the water table is near the surface.

Included in mapping are a few small areas of a soil similar to Pelham and Rains soils but less acid in the lower part of the subsoil.

Most of this Meggett soil is in natural woodland of sweetgum, blackgum, water oak, cypress, and palmetto. These natural trees and loblolly pine and slash pine are well suited to this soil. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species will increase survival of the seedlings.

This soil is poorly suited to farming and recreational development because of wetness and the hazard of flooding. These limitations also severely restrict urban use. They can be overcome only by extensive flood control and drainage.

This soil is in capability subclass VIw and woodland suitability group 1w.

MM—Meggett-Muckalee association. This map unit consists of poorly drained, nearly level soils on flood plains. It is frequently flooded in winter and spring. Slope is 0 to 2 percent. Areas are 50 to 3,000 acres. This map unit is made up mainly of Meggett and Muckalee soils that are closely associated in a regular repeating pattern. Muckalee soils commonly are nearer the stream channel than Meggett soils. The soils were not mapped separately, but mapping was controlled adequately for soil interpretations to be made for the expected uses. Although in individual mapped areas the proportion of each soil varies, a typical area is about 50 percent Meggett soils and 25 percent Muckalee soils. Other similar soils make up about 25 percent of the association.

Typically, Meggett soils have a surface layer of dark grayish brown loam 4 inches thick. The subsoil extends to a depth of 62 inches or more. It is predominantly gray or light gray clay.

Meggett soil is medium in natural fertility and organic matter. It is strongly acid or medium acid in the upper part and medium acid to neutral in the lower part. Permeability is slow, and available water capacity is high. Tilth is fair during the drier seasons. The root zone is deep, except in winter and spring when the soil is flooded or the water table is near the surface.

Typically, Muckalee soils have a surface layer of dark grayish brown loam 5 inches thick. The underlying layers, to a depth of 62 inches or more, are mainly gray. These layers are about 10 to 30 inches thick. Individual layers are sandy clay loam, sandy loam, loamy sand, or sand. Except for thin strata, the sandy layers are below a depth of 40 inches.

Muckalee soils are medium in natural fertility and low in organic matter. They are strongly acid or medium acid in the upper part and medium acid to neutral in the lower part. Permeability is moderate, and available water capacity is medium. Tilth is fair during the drier season. The root zone is deep, except in winter and spring when the soil is flooded or the water table is near the surface.

Most of this map unit is in natural woodland of sweetgum, water tupelo, cypress, and bay. These natural trees and loblolly pine and slash pine are well suited to the soils. However, seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species will increase survival of the seedlings.

This map unit is poorly suited to farming and recreational development because of wetness and flooding. These limitations also severely restrict urban use. They can be overcome only by extensive flood control and drainage.

The capability subclass is VIw for the Meggett soils and Vw for the Muckalee soils. The woodland suitability

group is 1w for the Meggett soils and 2w for the Muckalee soils.

NeB—Nankin-Esto sandy loams, 2 to 5 percent slopes. This complex consists of well drained, very gently sloping soils on undulating ridgetops and short hillsides on uplands. The areas of Nankin and Esto soils are so intermingled that they could not be mapped separately at the scale selected. Areas are 5 to 75 acres.

Nankin sandy loam makes up about 50 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam 8 inches thick. The subsoil extends to a depth of 55 inches. The upper part is dominantly strong brown sandy clay, the middle part is yellowish brown sandy clay that has red and gray mottles, and the lower part is reticulately mottled reddish, brownish, and grayish sandy clay loam. The underlying material, to a depth of 65 inches or more, is grayish, brownish, and reddish sandy clay loam. It is very firm and cemented in most places.

Nankin soils are low in natural fertility and organic matter. They are strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately slow, and available water capacity is medium. Tilth is good. Root penetration is somewhat restricted because the subsoil is firm and the underlying material is very firm.

Esto soils make up about 45 percent of each mapped area. Typically, the surface layer is brown sandy loam 7 inches thick. The subsoil is predominantly sandy clay and extends to a depth of 65 inches or more. The upper part is strong brown, the middle part is yellowish brown and has red and brown mottles, and the lower part is reticulately mottled reddish, brownish, and grayish.

Esto soils are low in natural fertility and organic matter. They are strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is slow, and available water capacity is medium. Tilth is good. The root zone is deep.

Included with this complex in mapping are small areas of Carnegie, Norfolk, Tifton, and Wagram soils. Areas of a soil that has a loamy sand surface layer are also included.

This Nankin-Esto complex is only moderately suited to farming; however, it is well suited to hay and pasture. Erosion is a moderate or slight hazard if cultivated crops are grown. Conservation tillage and use of cover crops, including grasses and legumes in the cropping system, reduce runoff and help to control erosion.

Slash pine and loblolly pine are moderately suited to this complex. Although there are no significant limitations to woodland use, management performed on the contour will keep soil erosion to a minimum.

This complex is only moderately suited to most urban uses and recreational development. The slow or moderately slow permeability in the subsoil limits the use of the soils for septic tank absorption fields. Commonly, this limitation can be overcome by modifying the design. A potential shrinking and swelling limits land use in parts of each mapped area.

This map unit is in capability subclass IIIe and woodland suitability group 3o.

NeC2—Nankin-Esto sandy loams, 5 to 8 percent slopes, eroded. This complex consists of well drained, gently sloping soils on narrow undulating ridgetops and short hillsides on uplands. The areas of Nankin and Esto soils are so intermingled that they could not be mapped separately at the scale selected. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are characterized by rills or galled spots and an occasional deep gully. Areas are 5 to 90 acres.

Nankin sandy loam makes up about 50 percent of each mapped area. Typically, the surface layer is dark brown sandy loam 6 inches thick. The subsoil extends to a depth of 48 inches. The upper part is mainly strong brown sandy clay, the middle part is yellowish brown sandy clay that has red and light gray mottles, and the lower part is mottled reddish, brownish, and grayish sandy clay loam. The underlying material, to a depth of 65 inches or more, is mottled grayish, brownish, and reddish sandy clay loam. It is very firm and cemented in places.

Nankin soils are low in natural fertility and organic matter. They are strongly or very strongly acid throughout except where the surface layer is limed. Permeability is moderately slow, and the available water capacity is medium. Tilth is good. Root penetration is somewhat restricted because the subsoil is firm and the underlying material is very firm.

Esto soils make up about 45 percent of each mapped area. Typically, the surface layer is brown sandy loam 6 inches thick. The subsoil dominantly is sandy clay and extends to a depth of 65 inches or more. The upper part is brownish yellow, the middle part is brownish yellow that has reddish and brownish mottles, and the lower part is mottled reddish, brownish, and grayish.

Esto soils are low in natural fertility and organic matter. They are strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is slow, and available water capacity is medium. Runoff is rapid. Tilth is good. The root zone is deep.

Included with this complex in mapping are small areas of Carnegie, Norfolk, Tifton, and Wagram soils. Also included are areas of a soil that has small chert fragments throughout and a soil that has a loamy sand surface layer.

This complex is poorly suited to farming because of rapid runoff and the somewhat gullied slopes. However, it is moderately suited to hay and pasture. Erosion is a severe hazard if cultivated crops are grown. Conservation tillage and the use of cover crops,

including grasses and legumes in the cropping system, reduce runoff and help control erosion.

Slash pine and loblolly pine are moderately suited to this complex. Although there are no significant limitations to woodland use, management performed on the contour will keep soil erosion to a minimum.

This complex is only moderately suited to most urban use and recreational development. The slow or moderately slow permeability in the subsoil limits the use of the soils for septic tank absorption fields. This limitation generally can be overcome by modifying the design. A potential shrinking and swelling limits land use in parts of each mapped area.

This map unit is in capability subclass IVe and woodland suitability group 3o.

NoA—Norfolk loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas are 10 to 150 acres.

Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 70 inches or more. The upper part is yellowish brown, and the lower part is brownish yellow and has brownish, red, and white mottles.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Wagram and Tifton soils. Also included are small areas of a soil that has a few nodules of ironstone on the surface.

This Norfolk soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help maintain organic matter and conserve moisture.

Loblolly pine and slash pine are well suited to this soil (fig. 5). There are no significant limitations for woodland use or management.

This soil is well suited to most urban use and recreational development.

This soil is in capability class I and woodland suitability group 2o.

NoB—Norfolk loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on broad ridgetops on uplands. Slopes are smooth and convex. Areas are 5 to 70 acres.

Typically, the surface layer is dark grayish brown loamy sand 9 inches thick. The subsoil is predominantly sandy clay loam and extends to a depth of 70 inches or more. It is yellowish brown except the lower part has brownish, reddish, and grayish mottles.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Wagram and Tifton soils.

This Norfolk soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops including grasses and legumes, terracing, and contour farming reduce runoff and help control erosion.

Loblolly pine and slash pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development.

This soil is in capability subclass IIe and woodland suitability group 2o.

NoC—Norfolk loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on narrow ridgetops and short hillsides on uplands. Slopes are smooth and convex. Areas are 5 to 25 acres.

Typically, the surface layer is dark grayish brown loamy sand 6 inches thick. The subsoil is predominantly sandy clay loam and extends to a depth of 65 inches or more. It is yellowish brown, except the lower part has brownish, reddish, and grayish mottles.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Tifton and Wagram soils. Also included in a few cultivated areas are several eroded spots.

This Norfolk soil is well suited to farming. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops including grasses and legumes, terracing, and contour farming help reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development.

Figure 5.—Loblolly pine on Norfolk loamy sand, 0 to 2 percent slopes. About 95 percent of the survey area is prime forestland that produces good yields of this common pine.

This soil is in capability subclass IIIe and woodland suitability group 2o.

Oc—Ocilla loamy sand. This somewhat poorly drained, nearly level soil is in low-lying areas and slight depressions on uplands. The water table is at a depth of 1.0 foot to 2.5 feet in winter to mid-spring. Areas are 5 to 70 acres.

Typically, the surface layer is dark gray loamy sand 7 inches thick. The subsurface layer is pale yellow loamy sand and extends to a depth of about 34 inches. The subsoil mainly is sandy clay loam and extends to a depth of 68 inches or more. The upper few inches of the subsoil is brownish yellow with very pale brown and light gray mottles, the middle part is mottled brownish and grayish, and the lower part is light gray and has brownish mottles.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep, except in winter to mid-spring when the water table commonly is at a depth of 1.0 foot to 2.5 feet.

Included with this soil in mapping are small areas of Goldsboro, Pelham, and Rains soils.

This Ocilla soil is only moderately suited to farming because it is wet. Drainage commonly will help overcome this limitation.

Loblolly pine and slash pine are moderately suited to this soil. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified

or special implements or by performing operations during the drier seasons. Drainage and the reduction of competing plants will increase survival of the seedlings.

This soil is poorly suited to most urban use and is only moderately suited to recreational development because it is wet. This limitation can be reduced by drainage.

This soil is in capability subclass IIIw and woodland suitability group 3w.

OeA—Orangeburg loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops of uplands. Areas are 10 to 300 acres.

Typically, the surface layer is dark grayish brown loamy sand 8 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, and the rest is red sandy clay loam.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Faceville, Lucy, Red Bay, and Tifton soils.

This Orangeburg soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help increase organic matter.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban use and recreational development.

This soil is in capability class I and woodland suitability group 2o.

OeB—Orangeburg loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on broad ridgetops on uplands. Slopes are smooth and convex. Areas are 10 to 200 acres.

Typically, the surface layer is dark brown loamy sand 8 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, and the rest is red sandy clay loam.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Faceville, Lucy, Red Bay, and Tifton soils. Also included are a few small eroded areas.

This Orangeburg soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops including grasses and legumes, terracing, and contour farming reduce runoff and help control erosion.

Loblolly pine and slash pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development.

This soil is in capability subclass IIe and woodland suitability group 2o.

OeC—Orangeburg loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil mainly is on hillsides of uplands. Slopes are smooth and convex. Areas are 5 to 30 acres.

Typically, the surface layer is brown loamy sand 5 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, and the rest is red sandy clay loam with brown mottles in the lower part.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and is easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Faceville, Red Bay, and Tifton soils. Small areas of Lucy soils that have short slopes are included near drainageways. Also included are small eroded spots and several shallow gullies in cultivated areas.

This Orangeburg soil is well suited to farming. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops including grasses and legumes, terracing, and contour farming reduce runoff and help control erosion.

Slash pine and loblolly pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development.

This soil is in capability subclass IIIe and woodland suitability group 2o.

OeD—Orangeburg loamy sand, 8 to 12 percent slopes. This well drained, strongly sloping soil is on hillsides of uplands. Slopes are short. Areas are 5 to 50 acres.

Typically, the surface layer is brown loamy sand 5 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, the middle part is red sandy clay loam, and the

lower part is red sandy clay loam that has brownish mottles.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Esto and Red Bay soils. Small areas of moderately steep soils are included on short hillsides near drainageways. Also included are a few small eroded spots and several shallow gullies.

Most of this Orangeburg soil is in woodland; some is used for cultivated crops. This soil is only moderately suited to farming because it has strong slopes. If cultivated crops are grown, erosion is a severe hazard. Conservation tillage, the use of cover crops including grasses and legumes, and contour farming reduce runoff and help control erosion.

Loblolly pine and slash pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is only moderately suited to most urban use and recreational development because it has strong slope.

This soil is in capability subclass IVe and woodland suitability group 2o.

OTE—Orangeburg, Esto and Troup soils, 12 to 25 percent slopes. This map unit consists of moderately steep, well drained soils on uplands. It is on the narrow part of the escarpment that separates the Chattahoochee River terrace from the adjoining upland (fig. 6) and in the short, inclined areas along small streams that drain into the river. This map unit consists mainly of Orangeburg, Esto, and Troup soils that are without regularity of pattern. Each mapped area contains one or two of the soils; some have all three. A typical area is about 40 percent Orangeburg soils, 30 percent Esto soils, and 20 percent Troup soils; but in the individual mapped areas, the proportion of each soil varies. Where present, Esto and Troup soils make up the more sloping middle and lower part of the escarpment; Orangeburg soils make up the less sloping upper part. Slopes are smooth and convex.

Typically, Orangeburg soils have a surface layer of brown loamy sand 5 inches thick. The subsoil extends to a depth of 65 inches or more. The upper few inches is yellowish red sandy loam, the middle part is red sandy clay loam, and the lower part is red sandy clay loam that has brown mottles.

Orangeburg soils are low in natural fertility and organic matter. They are strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is medium. The root zone is deep and easily penetrated by plant roots.

Typically, Esto soils have a surface layer of brown sandy loam 4 inches thick. The subsoil is clay and extends to a depth of 65 inches or more. The upper part is yellowish red, the middle part is yellowish red and has brown and gray mottles, and the lower part is mottled red, brown, and gray.

Esto soils are low in natural fertility and organic matter. They are strongly acid or very strongly acid throughout. Permeability is slow, and the available water capacity is medium. Runoff is rapid. Tilth is good. The root zone is deep.

Typically, Troup soils have a surface layer of dark grayish brown sand 5 inches thick. The subsurface layer extends to a depth of 60 inches. The upper part is yellowish brown sand, and the lower part is light yellowish brown coarse sand. The subsoil extends to a depth of 80 inches or more. It is yellowish brown sandy clay loam and has yellowish red mottles.

Troup soils are very low in natural fertility and organic matter. They are strongly acid or very strongly acid throughout. Permeability is rapid, and available water capacity is low. The root zone is deep and easily penetrated by plant roots.

Included with these soils in mapping are small areas of Americus, Lucy, and Red Bay soils.

This map unit is mostly wooded. It is moderately suited to loblolly pine, longleaf pine, and slash pine; however, less sandy areas of the upper escarpment are well suited. Erosion hazard and equipment limitations are the main management concerns on these moderately steep soils. Management performed on the contour, harvesting in periods of low rainfall, and establishing temporary vegetative cover help control erosion. Properly placed roads and log decks, winching, and hand planting reduce the equipment limitation.

This map unit is poorly suited to farming and urban use because of slope.

The capability subclass is VIe for the Orangeburg soil, VIIe for the Esto soil, and VIIs for the Troup soil. The woodland suitability group is 2o for the Orangeburg soil, 3r for the Esto soil, and 3s for the Troup soil.

Pe—Pelham loamy sand. This poorly drained, nearly level soil is in smooth areas and depressions and near drainageways on uplands. It is occasionally flooded for brief periods from winter to mid-spring. Slope is 0 to 2 percent. Areas are 5 to 100 acres.

Typically, the surface layer is very dark gray loamy sand 4 inches thick. The subsurface layer extends to a depth of 25 inches. The upper part is dark gray loamy sand, and the lower part is light gray sand. The subsoil is sandy clay loam and extends to a depth of 65 inches or more. It is light gray and has yellowish brown and red mottles.

Figure 6.—Orangeburg, Esto and Troup soils, 12 to 25 percent slopes, are on the narrow escarpment in the background. It separates soils on the terrace near the Chattahoochee River from soils on the nearby upland.

This soil is low in natural fertility and organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is low. Tilth is good during the drier seasons. The root zone is deep, except from mid-winter to mid-spring when the water table commonly is at a depth of 0.5 foot to 1.5 feet.

Included with this soil in mapping are small areas of Goldsboro, Grady, Ocilla, and Rains soils.

Slash pine and loblolly pine are well suited to this Pelham soil. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species will increase survival of the seedlings.

This Pelham soil is poorly suited to farming and recreational development because of wetness and the hazard of flooding. These limitations also severely restrict urban use. They can be overcome only by extensive flood control and drainage.

This soil is in capability subclass Vw and woodland suitability group 2w.

Ra—Rains loamy sand. This poorly drained, nearly level soil is in slight depressions and near drainageways on uplands. Slope is 0 to 2 percent. Areas are 10 to 70 acres.

Typically, the surface layer is very dark gray loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 15 inches. The upper part is grayish brown, and the lower part is light brownish gray. The subsoil extends to a depth of 68 inches or more. It

is predominantly light gray sandy clay loam that has brownish mottles.

This soil is low in natural fertility and organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good during the drier seasons. The root zone is deep, except from late fall to mid-spring when the water table is within a foot of the surface.

Included with this soil in mapping are small areas of Goldsboro, Grady, Ocilla, and Pelham soils. Also included in mapping are soils that have a sandy loam surface layer.

Loblolly pine and slash pine are well suited to this Rains soil. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reduction of competing plants, and the use of adapted species will increase survival of the seedlings.

This soil is poorly suited to farming and recreational development because of wetness. This limitation also severely restricts urban use. It can be overcome only by extensive drainage.

This soil is in capability subclass IVw and woodland suitability group 2w.

ReA—Red Bay sandy loam, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops of uplands. Areas are 10 to 150 acres.

Typically, the surface layer is dark reddish brown sandy loam 8 inches thick. The subsoil is dark red sandy clay loam and extends to a depth of 65 inches or more.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of Greenville and Orangeburg soils. A few areas of Red Bay soils that have a loamy sand surface layer are also included.

This Red Bay soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help to conserve moisture and maintain the level of organic matter.

Loblolly pine, slash pine, and long leaf pine are well suited to this soil. There are no significant limitations for woodland use and management.

This soil is well suited to most urban use and recreational development.

This soil is in capability class I and woodland suitability group 2o.

ReB—Red Bay sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on broad ridgetops of uplands. Slopes are smooth and convex. Areas are 10 to 100 acres.

Typically, the surface layer is dark reddish brown sandy loam 8 inches thick. The subsoil is dark red sandy clay loam and extends to a depth of 65 inches or more.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Americus, Greenville, and Orangeburg soils. Also included are eroded soils in which the subsoil is exposed. Some areas of Red Bay soils that have a loamy sand surface layer are included.

This Red Bay soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, terraces, contour farming, and the use of cover crops, including grasses and legumes in the cropping system, reduce runoff and help control erosion.

Loblolly pine, slash pine, and longleaf pine are well suited to this soil. Although there are no significant limitations for woodland uses, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development.

This soil is in capability subclass IIe and woodland suitability group 2o.

ReC—Red Bay sandy loam, 5 to 8 percent slopes. This well drained, gently sloping soil is on ridgetops and hillsides of uplands. Slopes are smooth and convex. Areas are 10 to 70 acres.

Typically, the surface layer is dark reddish brown sandy loam 5 inches thick. The subsoil is dark red sandy clay loam and extends to a depth of 65 inches or more.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Greenville, Lucy, and Orangeburg soils. Also included are eroded soils in which the subsoil is exposed and a few areas of Red Bay soils that have a loamy sand surface layer.

This Red Bay soil is well suited to farming. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops including grasses and legumes, terracing, and contour farming reduce runoff and help control erosion.

Loblolly pine, longleaf pine, and slash pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development.

This soil is in capability subclass IIIe and woodland suitability group 2o.

ReD—Red Bay sandy loam, 8 to 12 percent slopes. This well drained, strongly sloping soil is on hillsides on uplands. Slopes are short. Areas are 5 to 50 acres.

Typically, the surface layer is dark reddish brown sandy loam 5 inches thick. The subsoil is dark red and extends to a depth of 65 inches or more. It is sandy loam in the upper few inches and sandy clay loam in the lower part.

This soil is medium in natural fertility and low in organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Americus, Greenville, and Orangeburg soils. Also included are a few areas of soils similar to Red Bay soils that have a loamy sand surface layer, soils that have a few shallow and deep gullies, and eroded soils in which the subsoil is exposed.

This Red Bay soil is only moderately suited to farming because it has strong slopes. If cultivated crops are grown, erosion is a severe hazard. Conservation tillage, the use of cover crops including grasses and legumes, and contour farming reduce runoff and help control erosion.

Loblolly pine, slash pine, and longleaf pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is only moderately suitable to urban use and recreational development because it has strong slopes.

This soil is in capability subclass IVe and woodland suitability group 2o.

Ro—Riverview loam. This well drained, nearly level soil is on flood plains near the Chattahoochee River. It occasionally is flooded for brief periods in winter and early spring. Slope is 0 to 2 percent. Areas are 10 to 100 acres.

Typically, the surface layer is dark yellowish brown loam 8 inches thick. The subsoil extends to a depth of 39 inches. It is mainly brown and strong brown loam and silty clay loam. The underlying material is yellowish red sandy loam to a depth of about 65 inches or more. Flakes of fine mica are throughout the soil.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is high. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of a soil that has up to 24 inches of recent sandy overwash. Also included are a few areas of soils that are similar to Riverview soils except the loamy subsoil extends to a depth of more than 40 inches. Small areas of Kolomoki and Hornsville soils are included.

This Riverview soil is well suited to farming. Brief flooding can be expected in winter and early spring but this is not usually a hazard during the growing season. During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help to conserve moisture and maintain organic matter.

Loblolly pine and yellow-poplar are well suited to this soil. There are no significant limitations for woodland use and management.

This soil is severely limited for urban use and only moderately suited to most recreational development because it is subject to flooding. This limitation can only be overcome by extensive flood control.

This soil is in capability subclass IIw and woodland suitability group 1w.

TfA—Tifton loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas are 10 to 300 acres.

Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 65 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has red and brown mottles, and the lower part is mottled brown, red, and white. Plinthite is at a depth below about 42 inches and makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are throughout the soil.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Faceville, Marlboro, and Norfolk soils.

This Tifton soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Conservation tillage and the use of cover crops, including grasses and legumes in the cropping system, help maintain the level of organic matter and conserve moisture.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban use and recreational development; however, moderate permeability in the subsoil limits its use for septic tank absorption fields. This limitation can be overcome by special design and installation.

This soil is in capability class I and woodland suitability group 2o.

TfB—Tifton loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on uplands. Slopes commonly are smooth and convex. Areas are 10 to 200 acres.

Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 65 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is mottled brownish, red, and white. Plinthite is below a depth of about 36 inches and makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are throughout the soil.

This soil is low in natural fertility and organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Faceville, Marlboro, and Norfolk soils.

This Tifton soil is well suited to farming. During dry seasons, high yields can be obtained by irrigation. Erosion is a moderate hazard if cultivated crops are grown. Terraces, contour farming, conservation tillage, and the use of cover crops including grasses and legumes reduce runoff and help control erosion.

Loblolly pine and slash pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development, but moderate permeability in the subsoil limits its use for septic tank absorption fields. This limitation can be overcome by special design and installation.

This soil is in capability subclass IIe and woodland suitability group 2o.

TgC2—Tifton sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides on uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are irregular and convex. They are characterized by rills or galled spots, shallow gullies, and an occasional deep gully. Areas are 10 to 30 acres.

Typically, the surface layer is dark grayish brown sandy loam 5 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 65 inches or more. The upper part is yellowish brown, the middle part is mottled red and brown, and the lower part is mottled red, brown, and gray. Plinthite is below a depth of about 38 inches and makes up 5 to 15 percent of the lower part of the subsoil. Nodules of ironstone are throughout the soil.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderate, and available water capacity is medium. This soil has good tilth. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Carnegie, Faceville, and Norfolk soils.

This Tifton soil is well suited to farming, though erosion is a moderate hazard if cultivated crops are grown. Terraces, contour farming, conservation tillage, and the use of cover crops including grasses and legumes reduce runoff and help control erosion.

Loblolly pine and slash pine are well suited to this soil. Although there are no significant limitations for woodland use, management performed on the contour will keep soil erosion to a minimum.

This soil is well suited to most urban use and recreational development, but moderate permeability in the subsoil limits its use for septic tank absorption fields. This limitation can be overcome by special design and installation.

This soil is in capability subclass IIIe and woodland suitability group 2o.

ThD—Troup sand, 8 to 12 percent slopes. This well drained, strongly sloping soil is on hillsides of uplands. Slopes are short. Areas are 10 to 70 acres.

Typically, the surface layer is dark grayish brown sand 6 inches thick. The subsurface layer extends to a depth of 62 inches. The upper part is yellowish brown sand, and the lower part is light yellowish brown coarse sand. The subsoil extends to a depth of 78 inches or more. It is yellowish red sandy clay loam and has brownish mottles.

This soil is low in natural fertility and organic matter. It is very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of a soil that is similar to the Troup soil except that it has a clayey, mottled subsoil. Also included are soils that have surface and subsurface layers, which, combined, are less than 40 inches thick.

This Troup soil is poorly suited to farming because it has a low available water capacity and a strong slope. Gully erosion is a severe hazard in fallow areas.

Loblolly pine, longleaf pine, and slash pine are moderately suited to this soil. Because this soil has a low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants commonly will increase survival of the seedlings. Because of the sandiness of the soil, the use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons help overcome this limitation.

This soil is only moderately suited to most urban uses because it has strong slopes. Seepage is also a limitation for most sanitary facilities. Because it is too sandy, this soil is poorly suited to recreational development.

This Troup soil is in capability subclass VIs and woodland suitability group 3s.

TLB—Troup-Lakeland association, 1 to 5 percent slopes. This map unit consists of nearly level and very gently sloping soils on ridgetops of uplands. Slopes are smooth and convex. Areas are 10 to 300 acres. The areas are made up of well drained Troup soils and excessively drained Lakeland soils that are closely associated in a regular repeating pattern. The soils were not mapped separately; however, mapping was controlled adequately to permit interpretations for the expected uses. Although in individual mapped areas the proportion of each soil varies, a typical area is about 50 percent Troup soils and 40 percent Lakeland soils.

Typically, Troup soils have a surface layer of brown sand 8 inches thick. The subsurface layer is sand and extends to a depth of 62 inches. The upper part is yellowish brown, the middle part is light yellowish brown, and the lower part is pale brown. The subsoil extends to a depth of 78 inches or more. The upper few inches is light yellowish brown sandy loam, and the rest of the subsoil is mottled brownish sandy clay loam.

Troup soils are low in natural fertility and organic matter. They are very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Typically, Lakeland soils have a surface layer of dark grayish brown sand 6 inches thick. The underlying layers, to a depth of 82 inches, are sand. The upper part is yellowish brown, the middle part is light yellowish brown, and the lower part is pale brown with pockets of white sand.

Lakeland soils are low in natural fertility and organic matter. They are very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is very rapid, and the available water capacity is low. The soil has good tilth. The root zone is deep and easily penetrated by plant roots.

Other soils in this association are small areas of Americus, Lucy, or Wagram soils.

These Troup and Lakeland soils are poorly suited to farming because they have low available water capacity. Returning crop residue to the soil helps retain soil moisture. Yields of the crops commonly grown can be increased if these soils are irrigated.

Most of this unit is wooded. The natural vegetation is chiefly scrub oak and a few scattered pines (fig. 7). Loblolly pine, slash pine, and longleaf pine are moderately suited to these soils. Because these soils have a low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants commonly will increase survival of the seedlings. The sandiness of these soils commonly limits the use of conventional equipment. Using special implements or performing operations during the wetter seasons will help overcome this limitation.

These soils are well suited to most urban use. However, seepage is a limitation for most sanitary facilities. Because these soils are too sandy, they are poorly suited to recreational development.

The capability subclass for the Troup soil is IIIs and for the Lakeland soil is IVs. The woodland suitability group for the Troup soil is 3s and for the Lakeland soil is 4s.

TLC—Troup-Lakeland association, 5 to 8 percent slopes. This map unit consists of gently sloping soils on hillsides of uplands. Slopes are smooth and convex. Areas are 10 to 300 acres. The areas are made up of well drained Troup soils and excessively drained Lakeland soils that are closely associated in a regular repeating pattern. The soils were not mapped separately; however, mapping was controlled adequately to permit interpretations for the expected uses. Although in individual mapped areas the proportion of each soil varies, a typical area is about 50 percent Troup soils and 40 percent Lakeland soils.

Typically, Troup soils have a surface layer of dark grayish brown sand 6 inches thick. The subsurface layer is sand and extends to a depth of 62 inches. The upper part is yellowish brown, the middle part is strong brown and light yellowish brown, and the lower part is pale brown. The subsoil extends to a depth of 78 inches or more. It is mottled brownish and red sandy clay loam. The subsoil contains a few quartz pebbles.

Troup soils are low in natural fertility and organic matter. They are very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is low. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Typically, Lakeland soils have a surface layer of dark grayish brown sand 6 inches thick. The underlying layers, to a depth of 82 inches, are sand. The upper part is

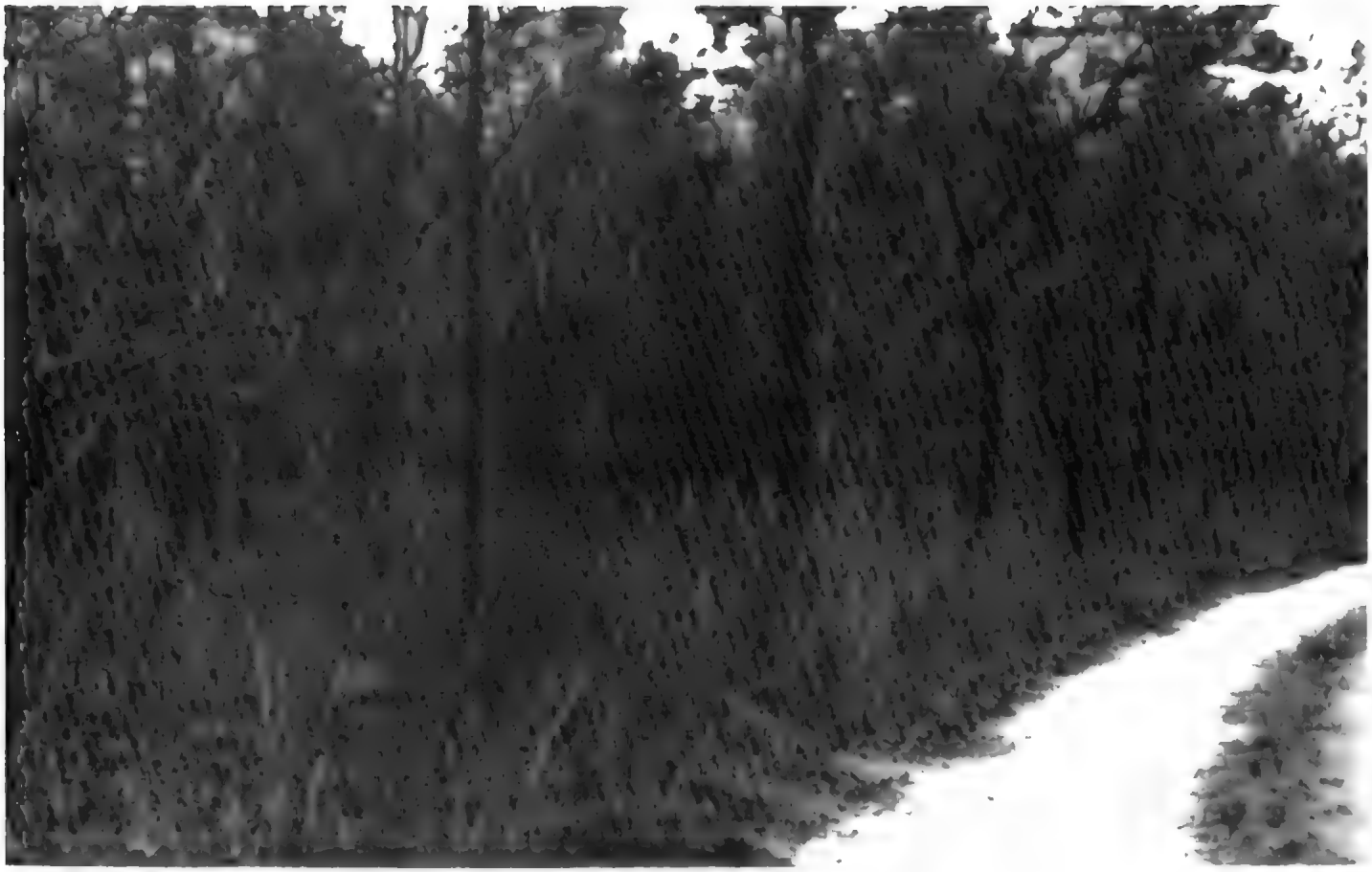


Figure 7.—Native scrub oak and pine on Troup-Lakeland association, 1 to 5 percent slopes. These soils, which have low available water capacity, are poorly suited to farming but are well suited to most nonfarm uses.

yellowish brown, the middle part is light yellowish brown, and the lower part is very pale brown.

Lakeland soils are low in natural fertility and organic matter. They are very strongly acid or strongly acid throughout except where the surface layer is limed. Permeability is very rapid, and the available water capacity is low. The soil has good tilth. The root zone is deep and easily penetrated by plant roots.

Other soils in this association are small areas of Wagram and Lucy soils.

The soils of this association are poorly suited to farming because they have low available water capacity. Returning crop residue to the soil helps overcome this limitation.

Most of the unit is wooded. Loblolly pine, slash pine, and longleaf pine are moderately suited to these soils. Because these soils have a low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants commonly will increase survival of the seedlings. The sandiness of the soils commonly limits the use of conventional equipment. Using special implements or performing operations during the wetter seasons will help overcome this limitation.

The soils are well suited to most urban uses. However, seepage is a limitation for most sanitary facilities. Because these soils are too sandy, they are poorly suited to most recreational development.

The capability subclass for the Troup soil is IVs and for the Lakeland soil is VIs. The woodland suitability group for the Troup soil is 3s and for the Lakeland soil is 4s.

UdD—Udorthents, 2 to 20 percent slopes. This map unit consists of well drained and excessively drained, very gently sloping to moderately steep soils in excavations and spoil material. It is on the terrace of the Chattahoochee River and along the escarpment that separates the river terrace from the adjoining uplands. Slopes are smooth and complex. This map unit is confined to the Columbia Lock and Dam site in Early County and covers about 150 acres.

A typical excavated area mainly consists of reddish and brownish, loamy or clayey material to a depth of 6 feet or more. The spoil material mostly consists of brownish and yellowish, sandy or loamy material to a depth of several feet.

These soils are low in natural fertility and organic matter. They are very strongly acid or strongly acid. Permeability is moderate in the clayey and loamy material and moderately rapid or rapid in the sandy material. Tilth is poor in the clayey areas; it is good in other places. The root zone is deep and easily penetrated by plant roots.

Most of the map unit is smooth and planted to grass. It is poorly suited to the common cultivated crops but is moderately suited to loblolly pine and slash pine. The more level and less sandy areas are moderately suited to recreational development if they are carefully planned and managed.

Udorthents are not assigned to a capability class or woodland suitability group.

UkB—Urban land-Kolomoki complex, 0 to 5 percent slopes. This map unit consists of a pulp factory sprawl and areas of Kolomoki soils so intermingled that they could not be mapped separately at the scale selected. This nearly level and very gently sloping complex is on the stream terrace near the Chattahoochee River in the southwestern part of Early County. It is confined to one area and covers about 600 acres.

Urban land makes up about 65 percent of the complex. About three-fourths of this is holding ponds for industrial waste; about one-fourth is the physical plant, parking lots, roads, and other construction.

Kolomoki soils make up about 30 percent of the complex. Typically, the surface layer is dark brown fine sandy loam 8 inches thick. The subsoil extends to a depth of 33 inches. The upper part is yellowish red clay, and the lower part is yellowish red sandy clay loam. The underlying material, to a depth of 65 inches or more, is strong brown sandy loam and sand.

Kolomoki soils are low in natural fertility and organic matter. They are strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and easily penetrated by plant roots.

Included in mapping are areas of soil material that has been altered from the nearby Kolomoki soils. Also included are areas of Buncombe and Riverview soils.

The Kolomoki soils are well suited to most urban use and recreational development.

This complex is not assigned to a capability class or woodland suitability group.

Up—Udorthents-Pits complex. This map unit consists of well drained, gently sloping and strongly sloping mine spoil material and deep pits. This complex is on uplands in the southwest corner of Calhoun County and adjacent Early County. Some slopes are short and choppy. Slopes of the mine spoil material are 5 to 15 percent. This map unit is confined to one area that covers about 750 acres.

In one typical area of the complex the spoil material is separated by an intricate network of deep pits. The spoil material is reddish and clayey and contains limerock fragments. Most pits contain water and are stocked with fish.

The spoil material is low in natural fertility and organic matter. It is strongly acid or medium acid. Permeability is moderate, and the available water capacity is medium. Tilth is poor. The root zone is deep and easily penetrated by plant roots.

Most of the spoil material has been smoothed and planted to grass, loblolly pine, or slash pine. It is poorly suited to farming because the surface layer is clayey, slopes are choppy, and there is an intricate network of pits. However, it is well suited to recreational development that is carefully planned and managed.

This complex is not assigned to a capability subclass or woodland suitability group.

WaB—Wagram loamy sand, 0 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on broad ridgetops of uplands. Slopes are smooth and convex. Areas are 10 to 100 acres.

Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsurface layer is light yellowish brown loamy sand 24 inches thick. The subsoil extends to a depth of 68 inches or more. The upper few inches is yellowish brown sandy loam, and the rest is yellowish brown sandy clay loam and has brownish mottles.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately rapid, and available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Norfolk and Troup soils. Also included are a few small areas of soils that are similar to Wagram soils except that they have a mottled subsoil that is more than 5 percent plinthite.

This Wagram soil is only moderately suited to farming because it has low available water capacity. Returning crop residue to the soil helps overcome this limitation. During dry seasons, high yields can be obtained by irrigation.

Slash pine, loblolly pine, and longleaf pine are moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants will increase survival

of the seedlings. Because of the sandiness of the soil, the use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons will help overcome the equipment limitation.

This soil is well suited to most urban use, but seepage is a limitation for some sanitary facilities. Because it is too sandy, this soil is only moderately suited to recreational development.

This soil is in capability subclass IIs and woodland suitability group 3s.

WaC—Wagram loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on narrow ridgetops and short hillsides on uplands. Slopes are smooth and convex. Areas are 5 to 25 acres.

Typically, the surface layer is dark grayish brown loamy sand 7 inches thick. The subsurface layer is yellowish brown loamy sand and extends to a depth of 24 inches. The subsoil is dominantly sandy clay loam and extends to a depth of 68 inches or more. It is yellowish brown, and the lower part has red and pale brown mottles.

This soil is low in natural fertility and organic matter. It is strongly acid or very strongly acid throughout except where the surface layer is limed. Permeability is moderately rapid, and available water capacity is low. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lucy, Norfolk, and Troup soils.

This Wagram soil is only moderately suited to farming because of low available water capacity and slope. Returning crop residue to the soil helps to retain soil moisture.

Loblolly pine and slash pine are only moderately suited to this soil. Because this soil has low available water capacity, seedling mortality is a concern. Proper planting of adapted drought-hardy species and the reduction of competing plants will increase survival of the seedlings. Because of the sandiness of the soil, the use of conventional equipment is limited. Using special implements or performing operations during the wetter seasons will help overcome the equipment limitation.

This soil is well suited to most urban uses, but seepage is a limitation for some sanitary facilities. Because it is too sandy, this soil is only moderately suited to recreational development.

This soil in in capability subclass IIIs and woodland suitability group 3s.

Important Farmland

This section gives the extent and location of the land in Calhoun and Early Counties that is important for producing food, feed, fiber, forage, and oilseed crops.

The map units that make up *prime farmland* and *additional farmland of statewide importance*, and the acreage of each, are listed in table 5. This list does not constitute a recommendation for a particular land use. The location of each map unit is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units."

Prime Farmland

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. The soil quality, moisture supply, and length of growing season are adequate to economically produce sustained high crop yields if acceptable farming methods are used. Prime farmland produces the highest yields with minimal inputs of energy and money, and farming it results in the least damage to the environment. Prime farmland is of major importance in satisfying the nation's short- and long-range needs for food and fiber. Because the supply of high quality farmland is limited, it should be used with wisdom and foresight.

Prime farmland is either currently used for producing food or fiber or is available for this use. Urban or built-up land, water areas, or areas used for other purposes that preclude later use of the soils for farmland are not included.

Prime farmland usually has an adequate and dependable supply of moisture from precipitation or irrigation. It has favorable temperature and growing season and acceptable soil reaction. It has few, if any, rocks and is permeable to water and air. Prime farmland is not excessively erodible or saturated with water for long periods and is not flooded during the growing season. Slope ranges mainly from 0 to 8 percent. For further information on the criteria for prime farmland, consult the local staff of the Soil Conservation Service.

In Calhoun and Early Counties about 329,000 acres, or about 63 percent of the survey area, meets the soil requirements for prime farmland (see table 5). Areas are scattered throughout the counties, but most are in map units 5, 6, 7, and 8 in Calhoun County and units 3, 6, 7, 8, and 9 in Early County on the general soil map.

Additional Farmland of Statewide Importance

A recent trend in land use in some parts of the county has been the loss of some prime farmland to industrial and urban uses. This loss puts pressure on additional farmland of statewide importance.

In Calhoun and Early Counties, about 67,000 acres is additional farmland of statewide importance (see table 5). This farmland consists of soils that are important to the agricultural resource base in the county but that do not meet the requirements for prime farmland. These soils are more erodible, droughty, seasonally wet, difficult to cultivate, and usually are less productive than prime farmland. The slope is 12 percent or less.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and suitabilities of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the suitability and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where wetness or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

Mary B. Leidner, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Soil erosion is a major concern on most of the soils used for farming in Calhoun and Early Counties. If slope is more than 2 percent, erosion is a hazard. Carnegie, Esto, Faceville, Greenville, Marlboro, Nankin, Norfolk, Orangeburg, Red Bay, and Tifton soils, for example, have slopes of 2 percent or more. Carnegie soils and gently sloping Esto, Faceville, Greenville, Nankin, and Tifton soils are eroded and have rills and gullies. The surface layer of these soils is a mixture of the original surface soil and the upper part of the subsoil.

Loss of the surface layer through erosion is damaging for two reasons—productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer, and the eroded soils cause sedimentation of streams. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Carnegie, Esto, Faceville, and Greenville soils. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, tilling or preparing a good seedbed is difficult on eroded spots left after the original, friable surface soil has eroded away. Such spots are common in areas of eroded Carnegie, Esto, Faceville, Greenville, Nankin, and Tifton soils.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps plant cover on the soil for extended periods aids in maintaining the productive capacity of the soils. On livestock farms, which require pasture and hay, the grass forage crops reduce erosion on sloping land and improve tilth for the following crop.

Using conservation tillage systems that leave adequate amounts of crop residue on the surface increases infiltration and reduces runoff and erosion. This practice can be used on most soils in the survey area. No-tillage for corn and soybeans, use of which is increasing, reduces erosion on sloping land and can be adapted to most soils in the survey area.

Terraces and diversions reduce the length of slope, reduce runoff, and control erosion. They are most practical on well drained soils that have smooth and convex slopes. Carnegie, Esto, Faceville, Greenville, Marlboro, Nankin, Norfolk, Orangeburg, Red Bay, and Tifton soils are suitable for terraces.

Contour farming is most effective on soils that have smooth, uniform slopes. It can be used on most areas of the very gently sloping or gently sloping Carnegie, Esto, Faceville, Greenville, Marlboro, Nankin, Norfolk, Orangeburg, Red Bay, and Tifton soils.

Soil blowing is a concern on the sandy Americus, Buncombe, Lakeland, Lucy, Troup, and Wagram soils. Soil blowing can damage these soils and the young plants growing on them if the soils are dry and have little surface mulch. Maintaining plant cover or surface mulch or keeping the surface rough through proper tillage minimizes soil blowing. Windbreaks effectively reduce soil blowing in broad, open fields.

Information on the design of erosion control practices for each kind of soil is available from local offices of the Soil Conservation Service.

Drainage is a major management need on most of the seasonally wet soils used for crops and pasture in the survey area. Some soils are so wet that production of crops common in the area is generally not possible. These are the poorly drained Grady, Herod, Meggett, Muckalee, Pelham, and Rains soils. Much of this land is wooded.

Unless artificially drained, the somewhat poorly drained soils are so wet that crops are damaged during most years. In this category are the Ocilla soils. Clarendon, Duplin, Hornsville, and Goldsboro soils are moderately well drained, but they generally need artificial drainage if they are to be farmed.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface drainage and tile drainage is needed in most areas of poorly drained soils before they can be used for row cropping. Drains have to be more closely spaced in slowly permeable soils than in more permeable soils. Tile drainage is slow in Grady and Meggett soils. Finding adequate outlets for tile drainage systems is difficult in many areas of Grady, Herod, Meggett, Muckalee, Pelham, and Rains soils.

Soil fertility is naturally low in most soils in the survey area. However, these soils respond well to fertilization and other good management. The poorly drained Grady, Herod, Meggett, Muckalee, Pelham, and Rains soils in depressions on uplands, along drainageways, and on flood plains commonly contain more organic matter than most well drained soils on uplands or on the high-lying stream terrace in Early County.

Most of the soils are naturally acid. If the soils used for cultivated crops and pasture have never been limed, applications of ground limestone are needed to raise the pH level sufficiently for good growth of legumes and other crops that grow best on neutral soils. Herod, Meggett, and Muckalee soils are naturally less acid than other soils in the survey area. Available phosphorus and potash levels are naturally low in most of the soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the desired level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of loamy sand or sandy loam that is low in content of organic matter. Tilth is generally good except on the eroded Carnegie, Esto, Faceville, Greenville, Nankin, and Tifton soils, in which the subsoil is exposed. Regular additions of crop residue, manure, and other organic material help to improve or maintain tilth.

Fall plowing is generally not a good practice in the survey area. Most of the cropland is subject to damaging erosion if plowed in fall.

Many field crops are suited to the soils and climate of the survey area. Corn, peanuts, soybeans, cotton, and grain sorghum are commonly grown. Wheat, rye, and oats are the common small grain crops.

Improved bermudagrass and bahiagrass are common pasture plants in Calhoun and Early Counties. These plants are well suited to moderately well drained and well drained loamy or clayey soils. Well drained Faceville, Greenville, Marlboro, Norfolk, Orangeburg, Red Bay, and Tifton soils and moderately well drained Clarendon, Duplin, and Goldsboro soils are representative of these soils. Excessively drained Lakeland soils and well drained Troup soils are representative soils that have a low available water capacity and are best suited to improved bermudagrass. Somewhat poorly drained Ocilla soils and poorly drained Pelham and Rains soils are representative of seasonally wet soils that are best suited to bahiagrass.

Special crops grown commercially in the survey area are vegetables and tree fruits. Pecans and sunflowers also are important.

Soils that have good natural drainage and that warm up early in spring are especially well suited to many vegetables and small fruits. These include the Carnegie, Faceville, Greenville, Kolomoki, Marlboro, Norfolk, Orangeburg, Red Bay, and Tifton soils that have slopes of less than 8 percent. If irrigated, nearly level and very gently sloping Americus, Lakeland, Lucy, Troup, and Wagram soils are also well suited to vegetables and small fruits. Crops can generally be planted and harvested earlier on all of these soils than on other soils in the survey area.

If excess water is removed, the somewhat poorly drained Ocilla soils and the moderately well drained

Clarendon, Duplin, Goldsboro, and Hornsville soils are well suited to a wide range of vegetables.

Most of the well drained soils in the survey area are suitable for orchards and nursery plants. Soils in low positions where frost is frequent and air drainage is poor generally are poorly suited to early vegetables, small fruits, and orchards. Latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields Per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss. Fertilizer needs of specific crops on specific soils can be determined by soil tests. General fertilizer recommendations for field crops are also available (*3*).

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w,* or *s,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w* or *s* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is shown in table 7. The capability classification

of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Gary L. Tyre, forester, Soil Conservation Service, helped prepare this section.

Among the most significant forest types of Calhoun and Early Counties are longleaf-slash pine, loblolly-shortleaf pine, oak-pine, oak-hickory, and oak-gum-cypress. These forest types were also predominant in the virgin forests in these counties.

Forestland makes up 160,100 acres, or 48 percent of Early County, and 93,800 acres, or 51 percent of Calhoun County (*10, 11*). In Calhoun County, pure pine stands make up 33 percent of the forest; oak-hickory, 33 percent; and oak-gum-cypress, 14 percent. In Early County, pine stands make up 38 percent of the forested land; oak-hickory, 19 percent; and oak-gum-cypress, 26 percent. The forestland in these counties is owned primarily by individuals—93 percent in Early County, and 91 percent in Calhoun. Forest industry owns 7 percent of the forestland in Early County and 9 percent in Calhoun County.

Significant changes in land use have occurred in recent years. About 6 percent of the forestland in Calhoun and Early Counties was converted to agricultural use from 1960 to 1970. Conversion was even faster from 1970 to 1980, involving as much as 10 percent of the forest. Some of this land is marginal for production of row crops because of its fertility and erodibility rating, but it was among the most productive forestland. Now, compared to many other areas of the state, forestland in these counties is relatively unproductive. Thirty percent of the forestland in Early County, and only 9 percent in Calhoun County, is adequately stocked to produce a cord or more of lumber per acre annually.

The stocking of forestland generally reflects its productivity. About 25 percent of Early County is fully stocked compared to 19 percent of Calhoun County. Of greater concern is that stocking of the smaller size classes on private lands is greatly reduced. This reflects inadequate regeneration of commercial species after harvest and could result in greatly decreased yields.

Forests in these counties are on a wide variety of soils. Large parts of the counties are made up of Tifton, Norfolk, Faceville, Greenville, Orangeburg, and Red Bay soils. These are well-drained soils on ridgetops and hillsides. They are moderately high to high in productivity and are well suited to slash pine and loblolly pine.

Other soils on uplands that are significant in extent are poorly drained Rains soils, moderately well drained Goldsboro soils, well drained Troup and Wagram soils, and excessively drained Lakeland soils. Goldsboro and Rains soils are very productive and have site indices of about 90. Most of the other soils are slightly less productive. Wagram, Troup, and Lakeland soils pose moderate management problems because of low available water capacity and the loose nature of the soil.

Poorly drained Herod, Muckalee, and Meggett soils are on flood plains or low stream terraces of creeks, and excessively drained Buncombe, well drained Kolomoki, and moderately well drained Hornsville soils are on flood plains and the high stream terrace near the Chattahoochee River. The poorly drained soils are very productive, but equipment limitations and seedling mortality are severe unless measures are taken to overcome the seasonal wetness. The better drained soils are also very productive and cause few management concerns.

Information in this section is provided to explain the relationship between soils and tree growth in these counties. It can be a useful tool in planning conservation practices and arriving at investment and management decisions.

Table 8 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *w*, indicates excessive water in or on the soil; *c*, clay in the upper part of the soil; and *s*, sandy texture. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: w, c, and s.

In table 8, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well-managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site index was determined at age 30 years for eastern cottonwood, 35 years for American sycamore, and 50 years for all other species. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

Recreation

Calhoun and Early Counties provide many possibilities for recreation. It is only necessary to find the best uses for each kind of soil. A few farm ponds and the Chattahoochee River are available for fishing and boating. Fishing is generally good in Spring, Pachitla, Ichawaynochaway, and Chickasawhatchee Creeks. Soils on the flood plains along these streams and smaller branches provide a biotic environment that is well suited to nature study, hunting, and similar activities. The well drained, nearly level and very gently sloping Faceville, Greenville, Marlboro, Norfolk, Orangeburg, Red Bay, and Tifton soils on ridgetops are well suited to playgrounds. If necessary, the very gentle slopes can be leveled and smoothed for ballfields and tennis courts. Most of the well drained, nearly level to gently sloping soils are also well suited to campsites, picnic areas, and golf courses. The well drained, strongly sloping and moderately steep soils on the smoother upland topography of hillsides are also well suited to parks, paths and trails, and nature study areas.

The Americus, Buncombe, Lakeland, Lucy, Wagram, and Troup soils are somewhat limited for recreational development because they are too sandy.

The Clarendon, Duplin, Goldsboro, Grady, Herod, Hornsville, Meggett, Muckalee, Ocilla, Pelham, Rains, and Riverview soils are limited for recreational development by seasonal wetness.

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have

moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Louis Justice, biologist, and Jerry Pilkinton, district conservationist, Soil Conservation Service, helped to prepare this section.

Calhoun and Early Counties are mainly rural, and they provide fair wildlife habitat in predominantly cropland and woodland settings. Fish and wildlife are important for recreation and contribute substantially to the local economy.

About 43 percent of the survey area is forested, and nearly 56 percent is in row crops and pasture. Forests in these counties are about 23 percent hardwoods, 52 percent or more pine, and 25 percent mixed type. The hardwoods include the gum-oaks community of the lowland and river swamp hardwoods; the gum-cypress community of the upland depressions; live and laurel oaks of the live oak forest; beech-magnolia in areas of sinkholes; and lowland evergreen hardwoods. The mixed type consists of longleaf-dwarf oaks of the dry pine barrens; the loblolly-shortleaf-persimmons community of the typical pine plantations; and loblolly-blackgum-oaks of the typical pine-deciduous hardwoods stands.

Major plant species of importance to terrestrial wildlife include greenbrier, bush and annual lespedezas, panicgrass, croton, ragweed, partridgepea, paspalum, tickclover, and sumac. Overstory and understory species of importance are sweetgum, blackgum, pine, oaks, hickories, hollies, blackberry, elderberry, hackberry, and maple. Domestic species of importance to wildlife include peanut, corn, soybeans, bahiagrass, and sunflowers.

Managed woodlands, unmanaged pasture, old fields, and young pine plantations produce numerous native woody and herbaceous plants important as food and cover for white-tailed deer, rabbits, fox, quail, and other wildlife species. Cropland, interspersed with pine plantations and hardwood forest, provides habitat for white-tailed deer, mourning dove, raccoons, gray squirrel, fox squirrel, opossums, fox, and other wildlife. Rabbit and bobwhite quail populations are good in areas that have suitable food and cover.

Land use trends toward extensive clearing of woodland for row crops and the introduction of irrigation are affecting fish and wildlife populations. Removal of crop residue from fields, removal of hedgerows and odd areas, and increased siltation are elements of this trend that have an adverse effect on fish and wildlife habitat. The use of chemicals in agriculture for increased production causes problems. Many of these chemicals have severe effects upon small birds and animals. The most seriously affected game animal is quail.

Restoring hedgerows, field borders, windbreaks, and odd areas in fields will improve habitat for wildlife (fig. 8). Wind damage to young crops can be decreased by establishing windbreaks. This can also be helpful to wildlife if suitable plants are selected. Areas unsuited to large irrigation systems still remain good for quail and rabbit populations.

Wetland habitat supports a variety of furbearers, including otter, beaver, and raccoon. The best wetland habitat available is bottomland hardwoods along the Chattahoochee River, Kolomoki Creek, Dry Creek, and Spring Creek in Early County and numerous lime sinks and bottomland hardwoods along the Ichawaynochaway, Sawhatchee, and Chickasawhatchee Creeks in Calhoun County. Calhoun and Early Counties contain about 52,000 acres of forested wetland, about 225 small ponds, and about 180 miles of streams.

Important freshwater sport fish in these counties include largemouth bass, crappie, channel catfish, bluegill, and redear sunfish. Anadromous sport fish species are striped bass and shad.

Because of the fragile habitat requirements of fish, special efforts are needed to restrict and retard both point and nonpoint sources of water pollution in these counties.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind

Figure 8.—Bi-color lespedeza and pines on Norfolk loamy sand, 0 to 2 percent slopes. Vegetated field borders provide food and cover for a variety of wildlife.

of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard,

and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are bahiagrass, lovegrass, lespedezas, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, lespedezas, goldenrod, beggarweed, partridgepea, three-awn, and composites.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are plum, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, dove, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, and beaver.

Engineering

Fenton W. Nash, Jr., agricultural engineer, Soil Conservation Service, helped prepare this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills,

septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and shrink-swell potential can cause the movement of footings. A high water table and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils.

Permeability, a high water table, and flooding affect absorption of the effluent.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, flooding, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope can cause construction problems.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, slope, and flooding affect both types of landfill. Texture, highly organic layers, and soil reaction affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by a high water table and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential on slopes of 15 to 25 percent. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), and the thickness of suitable material. Acidity and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope and a water table.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils; loamy soils that have a relatively high content of clay; soils that have only 20 to 40 inches of suitable material; soils that have an appreciable amount of gravel, stones, or soluble salts; or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey; have less than 20 inches of suitable material; have a large amount of gravel, stones, or soluble salts; have slopes of more than 15 percent; or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the layers that

affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by slope and the hazard of cut banks caving. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, permeability, erosion hazard, and slope. The performance of a system is affected by the soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope and wetness affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Wetness and slope affect the construction of grassed waterways. Low available water capacity, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 18.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas (*9*). Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 18.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical and Chemical Properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the

soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 17 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

Table 17 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs, on the average, no more than once in 2 years; and *frequent* that it occurs, on the average, more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 17.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Engineering Index Test Data

Table 18 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." The soil samples were tested by the Office of Material and Research, Georgia Department of Transportation.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 423 (ASTM); Plasticity index—T 90 (AASHTO), D 424 (ASTM); Moisture density, Method A—T 99 (AASHTO), D 698 (ASTM); Volume change (Abercrombie)—Georgia Highway Standard.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*12*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplaquents (*Hapl*, meaning minimal horizonation, plus *aquent*, the suborder of the Entisols that have an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, nonacid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*8*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*12*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Americus Series

The Americus series consists of somewhat excessively drained soils that formed dominantly in sandy marine sediment. Permeability is moderately rapid or rapid. Slope is 0 to 15 percent.

Americus soils are on the same landscape as the Greenville, Lucy, Orangeburg, and Red Bay soils. The associated soils are well drained. Greenville soils are in a clayey family. Lucy soils are arenic. Orangeburg and Red Bay soils are in a fine-loamy family. In addition, Orangeburg soils are typic.

Typical pedon of Americus loamy sand, 0 to 5 percent slopes, 2.0 miles north of Oak Grove Church, 0.5 mile east on road to Hutchins Landing, south cut of a small borrow pit; in Early County:

Ap—0 to 8 inches; dark reddish brown (5YR 3/4) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.
B1—8 to 18 inches; dark reddish brown (2.5YR 3/4) loamy sand; weak fine granular structure; very friable; common fine roots; very strongly acid; clear smooth boundary.
B21t—18 to 36 inches; dark red (2.5YR 3/6) loamy sand; weak medium granular structure; very friable; few fine roots; most sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.
B22t—36 to 51 inches; dark red (2.5YR 3/6) loamy sand; moderate medium granular structure; very friable; few fine roots; most sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.
B23t—51 to 72 inches; dark red (2.5YR 3/6) sandy loam; weak medium subangular blocky structure; friable; few fine roots; most sand grains coated and bridged with clay; very strongly acid.

Solum thickness is 72 to 80 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 5 to 9 inches thick. It has hue of 2.5YR, value of 3, and chroma of 2 or 4; or it is 7.5YR 3/2 or 5YR 3/4.

The B1 horizon has hue of 5YR or 2.5YR, value of 3, and chroma of 4.

The B2t horizon has hue of 2.5YR, value of 3, and chroma of 4 or 6. The lower part of this horizon is loamy sand or sandy loam.

Buncombe Series

The Buncombe series consists of excessively drained soils that are rapidly permeable. These soils formed in thick sandy alluvial sediment on flood plains. Slope is 0 to 2 percent.

Buncombe soils are associated with Hornsville, Kolomoki, and Riverview soils. Riverview soils are on the same landscape as Buncombe soils; Hornsville and Kolomoki soils are on stream terraces. Well drained Riverview soils are in a fine-loamy family. Moderately well drained Hornsville soils and well drained Kolomoki soils are in a clayey family.

Typical pedon of Buncombe loamy sand, 0 to 2 percent slopes, about 9.0 miles west of Blakely, 0.5 mile south of Odom Creek Park, on the east bank of the Chattahoochee River; in Early County:

Ap—0 to 8 inches; brown (10YR 5/3) loamy sand; weak fine granular structure; very friable; many fine roots; few fine flakes of mica; strongly acid; clear smooth boundary.
C1—8 to 25 inches; dark yellowish brown (10YR 4/4) loamy sand; single grained; loose; few fine roots; few fine flakes of mica; very strongly acid; gradual smooth boundary.
C2—25 to 45 inches; yellowish brown (10YR 5/4) loamy sand; single grained; loose; common fine flakes of mica; very strongly acid; clear wavy boundary.
C3—45 to 65 inches; yellowish brown (10YR 5/6) sandy loam; thin strata of brown (7.5YR 4/4) loamy sand; massive; very friable; common fine flakes of mica; very strongly acid.

Thickness of the sediment ranges from 40 to 72 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. The soil contains few or common fine flakes of mica.

The A horizon is 3 to 8 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 2 to 4.

The C horizon has hue of 7.5YR, value of 4 to 6, and chroma of 4 or 6; or it has hue of 10YR, value of 4 to 6, and chroma of 4; or it is 10YR 4/3, 5/6, or 6/6. This horizon, to a depth of 40 inches, commonly is loamy sand, but some pedons are sand. Below a depth of 40 inches, this horizon is sand, loamy sand, or sandy loam.

Carnegie Series

The Carnegie series consists of well drained soils that have moderately slow permeability. These soils formed predominantly in clayey marine sediment on uplands. Slope is 3 to 12 percent.

Carnegie soils are on the same landscape as the Esto, Nankin, and Tifton soils. Esto soils do not contain plinthite. Nankin soils are less than 5 percent plinthite in the B horizon and have a thinner solum. Tifton soils are in a fine-loamy family and are 5 percent or more plinthite below a depth of 30 to 50 inches.

Typical pedon of Carnegie sandy loam, 5 to 8 percent slopes, eroded, 1.2 miles west of Mount Ararat Baptist Church on paved road, 375 feet north on dirt road, east roadcut; in Early County:

Apcn—0 to 6 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine roots; about 10 percent nodules of ironstone 0.12 to 0.50 inch in diameter; strongly acid; abrupt smooth boundary.
B21tcn—6 to 20 inches; strong brown (7.5YR 5/6) sandy clay; moderate medium subangular blocky structure; friable; common fine roots in upper part; patchy clay films on faces of few peds; common nodules of

ironstone; very strongly acid; gradual smooth boundary.

B22tcn—20 to 32 inches; strong brown (7.5YR 5/6) sandy clay; common medium distinct red (2.5YR 4/6) mottles, and few medium distinct very pale brown (10YR 7/3) mottles; moderate medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; few fine roots; common nodules of ironstone; about 6 percent nodular plinthite; very strongly acid; clear wavy boundary.

B23t—32 to 50 inches; mottled yellowish brown (10YR 5/6), red (2.5YR 4/6), and light gray (10YR 7/2) sandy clay; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; about 15 percent nodular plinthite; very strongly acid; gradual wavy boundary.

B24t—50 to 65 inches; mottled yellowish brown (10YR 5/6), red (2.5YR 4/6), and white (10YR 8/1) sandy clay; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; 10 percent plinthite; very strongly acid.

Solum thickness is 65 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Depth to horizons that are 5 percent or more plinthite ranges from 16 to 26 inches (fig. 9).

The A horizon is 4 to 8 inches thick. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. Nodules of ironstone range from 5 to 15 percent.

The B21tcn horizon has hue of 5YR or 7.5YR, value of 4 or 6, and chroma of 6 or 8. It is sandy clay or sandy clay loam. If present, nodules of ironstone are as much as 10 percent of the horizon.

The B22tcn horizon has the same matrix colors as the B21tcn horizon, but if present, mottles are reddish, brownish, yellowish, or grayish. If present, nodules of ironstone are as much as 10 percent of the horizon. Plinthite content ranges from 5 to 15 percent.

The B23t horizon and B24t horizon commonly are reticulately mottled reddish, brownish, yellowish, and grayish. Sandy or clayey pockets are common. Plinthite content ranges from 10 to 15 percent.

Clarendon Series

The Clarendon series consists of moderately well drained soils. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. These soils formed dominantly in loamy marine sediment and are on uplands. The water table is at a depth of 2 to 3 feet in winter and early spring. Slope is 0 to 2 percent.

Clarendon soils are associated with Goldsboro, Norfolk, and Tifton soils. Goldsboro soils are on low-lying uplands with Clarendon soils; Norfolk and Tifton soils commonly are on higher lying ridgetops and hillsides. Moderately well drained Goldsboro soils and well drained

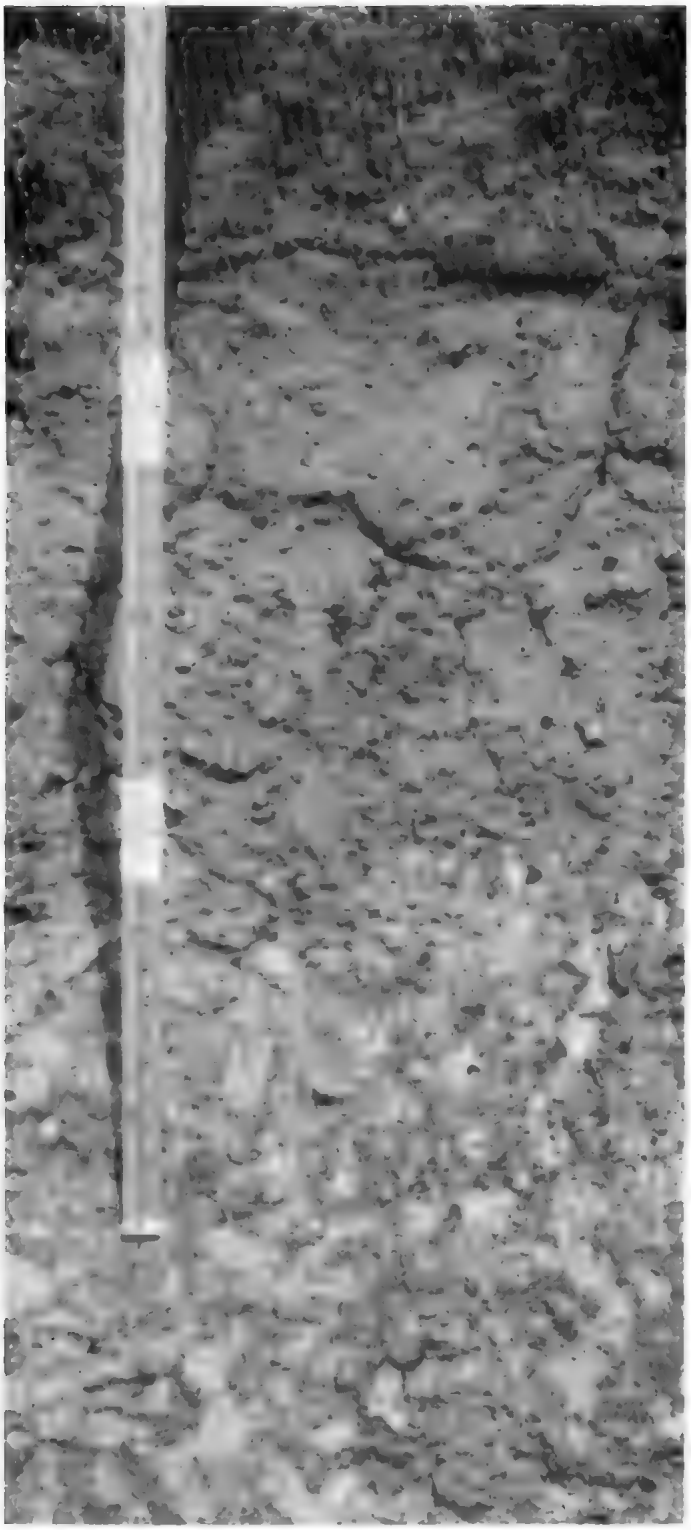


Figure 9.—Profile of Carnegie sandy loam, 5 to 8 percent slopes, eroded. Below a depth of about 24 inches, this soil is firm and contains 10 to 15 percent plinthite. The plinthite reduces permeability and limits some uses.

Norfolk soils are less than 5 percent plinthite. Tifton soils are well drained.

Typical pedon of Clarendon loamy sand, 0 to 2 percent slopes, 1.5 miles south-southwest of Springfield Church, 2.0 miles west of the Early and Miller County line; in a drainage ditchbank in Early County:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; very friable; common fine roots; few nodules of ironstone; strongly acid; abrupt wavy boundary.

B1—7 to 11 inches; light yellowish brown (2.5Y 6/4) sandy loam; moderate medium granular structure; friable; common fine roots; few nodules of ironstone; strongly acid; clear wavy boundary.

B21t—11 to 19 inches; light olive brown (2.5Y 5/4) sandy clay loam; weak medium subangular blocky structure; friable; many fine pores; few fine roots; thin patchy clay films on faces of peds; few nodules of ironstone; very strongly acid; clear wavy boundary.

B22t—19 to 25 inches; light olive brown (2.5Y 5/4) sandy clay loam; common fine and medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; many fine pores; few nodules of ironstone; very strongly acid; gradual wavy boundary.

B23t—25 to 34 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) mottles, and common medium distinct light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few fine roots; 3 percent nodular plinthite; few nodules of ironstone; very strongly acid; clear wavy boundary.

B24t—34 to 52 inches; mottled yellowish brown (10YR 5/6), light gray (10YR 7/1), and red (2.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; firm; 15 percent nodular plinthite; few nodules of ironstone; very strongly acid; gradual wavy boundary.

B3g—52 to 65 inches; light gray (10YR 7/1) sandy clay loam; common coarse distinct yellowish brown (10YR 5/6) mottles, and few medium and coarse prominent red (2.5YR 4/6) mottles; weak medium subangular blocky structure; firm; 10 percent nodular plinthite; very strongly acid.

Solum thickness is 62 to 80 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 6 to 9 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. The A2 horizon, if present, has hue of 10YR, value of 6 or 7, and chroma of 3 or 4.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8; or it has hue of 2.5Y, value of 6, and chroma of 4, 6, or 8 or value of 5 and chroma of 4 or 6.

The Bt horizon has the same colors as the B1 horizon. The upper part of the Bt horizon is less than 5 percent plinthite. The lower part of the Bt horizon is 5 to 25 percent plinthite. Brown, red, yellow, and gray mottles are at a depth of 20 to 30 inches and are throughout the lower part of the Bt horizon.

The B3 horizon is 10YR 7/1 or 5Y 7/1 in color and is mottled 10YR 5/6; or it has hue of 2.5YR, value of 3 or 4, and chroma of 6; or it is mottled 10YR 7/1, 10YR 5/6, and 2.5YR 4/6.

Duplin Series

The Duplin series consists of moderately well drained soils that have moderately slow permeability. These soils formed mainly in clayey marine sediment on uplands. The water table is at a depth of 2.0 to 3.0 feet from winter to mid-spring. Slope is 0 to 2 percent.

Duplin soils are associated with Faceville, Goldsboro, and Grady soils. Goldsboro soils are on low-lying uplands with Duplin soils; Faceville soils commonly are on higher lying ridgetops and hillsides; and Grady soils are in depressions. Well drained Faceville soils have a reddish subsoil. Goldsboro soils have a fine-loamy control section. Grady soils are poorly drained.

Typical pedon of Duplin sandy loam, 0 to 2 percent slopes, 0.9 mile south of the Clay and Early County line, 0.4 mile west of U.S. Highway 27; in Early County:

Ap—0 to 8 inches; brown (10YR 5/3) sandy loam; weak medium granular structure; very friable; common fine roots; few medium roots; very strongly acid; abrupt smooth boundary.

B1—8 to 11 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; mixing of Ap horizon in root holes; very strongly acid; clear smooth boundary.

B21t—11 to 19 inches; light yellowish brown (2.5Y 6/4) sandy clay; common medium prominent strong brown (7.5YR 5/6) mottles in the lower part of the horizon; weak medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of most peds; very strongly acid; clear smooth boundary.

B22t—19 to 26 inches; light yellowish brown (2.5Y 6/4) sandy clay; common medium prominent strong brown (7.5YR 5/6) mottles and few medium distinct light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; firm; few fine roots; thin patchy clay films on faces of most peds; very strongly acid; gradual smooth boundary.

B23t—26 to 36 inches; light yellowish brown (2.5YR 6/4) sandy clay; common medium prominent yellowish brown (5YR 5/6) mottles, common medium distinct

light gray (10YR 7/1) mottles and few medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; thin patchy clay films on faces of most peds; very strongly acid; gradual smooth boundary.

B24t—36 to 44 inches; mottled light yellowish brown (2.5Y 6/4), light gray (10YR 7/1), yellowish brown (10YR 5/6), and red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; firm; few fine roots; thin patchy clay films on faces of most peds; very strongly acid; gradual smooth boundary.

B25tg—44 to 54 inches; light gray (10YR 7/1) sandy clay that has small pockets of sandy clay loam; common medium prominent red (2.5YR 4/6) mottles, and common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; very strongly acid; gradual smooth boundary.

B3g—54 to 65 inches; light gray (5Y 7/1) sandy clay that has small pockets of sandy clay loam; many medium prominent yellowish brown (10YR 5/6) mottles, and common medium prominent red (2.5YR 4/6) mottles; weak coarse subangular blocky structure; firm; very strongly acid.

Solum thickness is 65 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 6 to 8 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2; or it is 10YR 5/3.

The Bt horizon has hue of 7.5YR, value of 4 to 6, and chroma of 4 or is 7.5YR 5/6; has hue of 10YR, value of 5 or 6, and chroma of 4 or 6; or has hue of 2.5Y, value of 5 or 6, and chroma of 4. Red or brown mottles are throughout the horizon. Gray mottles are within a depth of 12 to 30 inches. A gray matrix commonly is at a depth of more than 40 inches. This horizon is clay or sandy clay.

The B3 horizon is 5YR 7/1 or 10YR 7/1. It is mottled in hue of 10YR or 2.5YR, value of 4 or 5, and chroma of 6. It is sandy clay or sandy clay loam.

Esto Series

The Esto series consists of well drained soils that have slow permeability. These soils formed in clayey marine sediment on uplands. Slope is 2 to 25 percent.

Esto soils commonly are on the same landscape as the Carnegie, Nankin, Norfolk, Orangeburg, and Tifton soils. Carnegie soils contain plinthite. Nankin soils have a thinner solum than Esto soils. Norfolk, Orangeburg, and Tifton soils are in a fine-loamy family. In addition, Tifton soils are 5 percent or more plinthite below a depth of 30 to 50 inches. In places, moderately steep Esto soils are on the same hillside with Orangeburg and Troup soils. Troup soils are grossarenic.

Typical pedon of Esto sandy loam, in an area of Nankin-Esto sandy loams, 5 to 8 percent slopes, eroded, 0.3 mile east on paved road that crosses Kirkland Creek immediately below the dam at Howards Mill, 0.2 mile southwest on dirt road, in east roadcut; in Early County:

Ap—0 to 6 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; abrupt smooth boundary.

B1—6 to 10 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable; strongly acid; common fine roots; clear smooth boundary.

B21t—10 to 17 inches; brownish yellow (10YR 6/6) sandy clay; moderate medium subangular blocky structure; friable; few fine roots; clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—17 to 27 inches; brownish yellow (10YR 6/6) sandy clay; common medium distinct yellowish brown (10YR 5/6) mottles, common medium prominent yellowish red (5YR 5/6) mottles and few fine faint light gray mottles; moderate medium subangular blocky structure; firm; few fine roots; clay films on faces of peds; strongly acid; gradual wavy boundary.

B23t—27 to 46 inches; mottled yellowish brown (10YR 5/6), red (2.5YR 4/6), and light gray (10YR 7/2) sandy clay; moderate medium subangular blocky structure; firm; clay films on faces of peds; strongly acid; gradual clear wavy boundary.

B24t—46 to 65 inches; mottled light gray (10YR 7/1), red (2.5YR 4/6), and yellowish brown (10YR 5/6) sandy clay; massive parting to weak medium subangular blocky structure; firm; clay films on faces of peds; strongly acid.

Solum thickness is 62 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 4 to 8 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 or 3.

The B1 horizon has hue of 10YR and 7.5YR, value of 5 or 6, and chroma of 4, 6, or 8.

The Bt horizon has hue of 10YR, 7.5YR, or 5YR, value of 4 to 6, and chroma of 4 or 6; or it has hue of 10YR, 7.5YR, or 5YR, value of 5 or 6, and chroma of 8. It is sandy clay or clay. The Bt horizon commonly is mottled red, yellow, brown, and gray above a depth of 20 inches. It is reticulately mottled red, yellow, brown, and gray at a depth of about 30 inches.

The B3 horizon is reticulately mottled red, yellowish brown, or gray. It is sandy clay or clay.

Faceville Series

The Faceville series consists of well drained soils that are moderately permeable. These soils formed

dominantly in clayey marine sediment on uplands. Slope is 0 to 12 percent.

Faceville soils are on the same landscape as the Greenville, Marlboro, Orangeburg, and Tifton soils. Greenville soils are rhodic. Marlboro soils have a predominantly yellowish brown subsoil. Orangeburg and Tifton soils are in a fine-loamy family. In addition, Tifton soils contain plinthite and have a less red subsoil.

Typical pedon of Faceville sandy loam, 2 to 5 percent slopes, 4.5 miles northwest of Blakely on Georgia Highway 39, 0.7 miles north on paved county road, in roadcut; in Early County:

Ap—0 to 7 inches; brown (7.5YR 4/4) sandy loam; weak fine granular structure; very friable; common fine roots; few small nodules of ironstone; strongly acid; abrupt smooth boundary.

B21t—7 to 18 inches; red (2.5YR 5/6) sandy clay; weak medium subangular blocky structure; friable, slightly sticky; few patchy clay films on faces of some peds; common fine roots; few small nodules of ironstone; strongly acid; clear smooth boundary.

B22t—18 to 30 inches; red (2.5YR 5/6) sandy clay; moderate medium subangular blocky structure; friable; very sticky; continuous clay films on faces of most peds; few fine roots; few small nodules of ironstone; very strongly acid; gradual smooth boundary.

B23t—30 to 42 inches; red (2.5YR 5/6) sandy clay; moderate medium subangular blocky structure; friable; very sticky; many continuous clay films on faces of peds; few fine roots; very strongly acid; clear smooth boundary.

B24t—42 to 54 inches; red (2.5YR 4/6) sandy clay; common medium distinct yellowish brown (10YR 5/6) mottles, and few medium prominent very pale brown (10YR 7/3) mottles; moderate medium subangular blocky structure; friable; sticky; continuous clay films on faces of most peds; few very fine roots; very strongly acid; gradual wavy boundary.

B25t—54 to 70 inches; reticulately mottled red (2.5YR 4/6), yellowish brown (10YR 5/6), and very pale brown (10YR 7/3) sandy clay; strong medium angular blocky structure; firm; sticky; few continuous clay films on faces of some peds; few very fine roots; very strongly acid.

Solum thickness is 65 to 72 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. If present, some nodules of ironstone range from 1 to 10 percent in the A horizon and are less than 3 percent in the B horizon. Plinthite content is less than 5 percent to a depth of 65 inches or more.

The Ap horizon is 5 to 9 inches thick. It has hue of 5YR, 7.5YR, and 10YR; value of 4 or 5; and chroma of 2 to 4.

The B1 horizon, if present, has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8; or it is 7.5YR 5/6 or 5/8.

The Bt horizon commonly has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8; but it is 2.5YR 3/6 below a depth of 40 inches in some pedons. The Bt horizon is sandy clay or clay. Red and brown mottles are in many pedons at a depth of 35 inches or more.

The B3 horizon is reticulately mottled reddish, brownish, and yellowish. It is sandy clay or clay.

Goldsboro Series

The Goldsboro series consists of moderately well drained soils that have moderate permeability. These soils formed in loamy marine sediment on uplands. The water table is at a depth of 2.0 to 3.0 feet from winter to mid-spring. Slope is 0 to 2 percent.

Goldsboro soils are associated with Norfolk, Rains, and Tifton soils. Norfolk and Tifton soils are well drained and commonly are on higher lying ridgetops and hillsides. In addition, Tifton soils contain plinthite. Rains soils are poorly drained and are in depressions or drainageways.

Typical pedon of Goldsboro loamy sand, 0 to 2 percent slopes, 0.6 mile south and 1.0 mile east of the junction with Georgia Highways 234 and 45; in Calhoun County:

Ap—0 to 7 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; few fine roots; very strongly acid; abrupt smooth boundary.

A2—7 to 13 inches; yellowish brown (10YR 5/4) loamy sand; weak medium granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

B1—13 to 17 inches; light yellowish brown (2.5Y 6/4) sandy loam; few fine distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

B21t—17 to 24 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; few fine distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; patchy clay films on few faces of peds; very strongly acid; gradual wavy boundary.

B22t—24 to 33 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium distinct light gray (10YR 7/2) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; patchy clay films on few faces of peds; very strongly acid; gradual smooth boundary.

B23t—33 to 42 inches; mottled yellowish brown (10YR 5/6), light yellowish brown (2.5YR 6/4), and light gray (10YR 7/2) sandy clay loam; weak medium subangular blocky structure; friable; patchy clay films

on few faces of peds; very strongly acid; gradual smooth boundary.

B24tg—42 to 65 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles and few medium prominent red (2.5YR 4/6) mottles; weak medium subangular blocky structure; friable; very strongly acid.

Solum thickness is 62 to 80 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 6 to 8 inches thick. It has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. The A2 horizon is 4 to 6 inches thick. It has hue of 10YR, value of 5, and chroma of 2 to 4.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 3, 4, or 6; or it has hue of 2.5Y, value of 5 or 6, and chroma of 4 or 6. Few or common, fine or medium, gray mottles are at a depth of 30 inches or less.

Grady Series

The Grady series consists of poorly drained soils that are slowly permeable. These soils formed dominantly in clayey marine sediment in upland depressions. This soil commonly is ponded or the water table is within 1.0 foot of the surface from winter to early summer. Slope is 0 to 2 percent.

Grady soils are associated with Goldsboro, Norfolk, Tifton, and Wagram soils. These higher lying soils surround the Grady soils on ridgetops and hillsides. The associated soils are better drained and have less clay in the subsoil. Grady soils are on the same landscape as the Rains soils. Rains soils have less clay in the subsoil.

Typical pedon of Grady loam, 2.5 miles north of Springfield Church on Georgia Highway 39, 250 feet east of highway, in a depression; in Early County:

Ap—0 to 4 inches; very dark gray (10YR 3/1) loam; weak medium granular structure; very friable; many fine roots; abrupt smooth boundary; very strongly acid.

B1g—4 to 9 inches; dark gray (10YR 4/1) sandy clay loam; weak fine subangular blocky structure; friable; common fine roots; few fine pores; clear smooth boundary; very strongly acid.

B21tg—9 to 30 inches; gray (10YR 6/1) clay; common fine and medium distinct yellowish brown (10YR 5/6) and red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; plastic; few fine roots; clay films on faces of few peds and in root channels; gradual smooth boundary; strongly acid.

B22tg—30 to 48 inches; light gray (5Y 7/1) clay; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; plastic; few fine roots; patchy clay films on faces of most peds; gradual smooth boundary; strongly acid.

B23tg—48 to 62 inches; light gray (5Y 7/1) clay; few fine prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm, plastic; patchy clay films on faces of most peds; gradual smooth boundary; strongly acid.

B3g—62 to 68 inches; light gray (5Y 7/1) sandy clay; few fine prominent yellowish brown (10YR 5/6) mottles; massive; extremely firm, plastic; strongly acid.

Solum thickness is 60 to 80 inches or more. The soil is strongly acid or very strongly acid throughout.

The A1 horizon or Ap horizon is 4 to 9 inches thick. It has hue of 10YR, value of 2 to 4, and chroma of 1; or it is 10YR 3/2. The A2 horizon, if present, has hue of 10YR or 2.5Y, value of 5, and chroma of 2.

The B1 horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1.

The Btg horizon has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1. There are few to many gray, strong brown, yellowish brown, light yellowish brown, and red mottles throughout the horizon in some pedons. This horizon is clay or sandy clay.

The B3 horizon is 5Y 7/1 and is mottled 2.5YR 4/6 or 10YR 5/6, or it is neutral and has value of 6 and is mottled 7.5YR 4/4.

Greenville Series

The Greenville series consists of well drained soils that are moderately permeable. These soils formed dominantly in clayey marine sediment on uplands. Slope is 0 to 12 percent.

Greenville soils are on the same landscape as the Faceville, Orangeburg, and Red Bay soils. Faceville soils have a red B horizon. Orangeburg soils have a red B horizon that is loamy. Red Bay soils have a loamy B horizon.

Typical pedon of Greenville sandy loam, 2 to 5 percent slopes, 0.5 mile south from the Clay and Early county line on Georgia Highway 39, 300 feet west of the highway; in Early County:

Ap—0 to 7 inches; dark reddish brown (5YR 3/4) sandy loam; weak medium granular structure; very friable; common fine roots; few small clods of B1 horizon mixed with Ap material; few small nodules of ironstone and manganese concretions; strongly acid; abrupt smooth boundary.

B1—7 to 11 inches; dark red (2.5YR 3/6) sandy clay; weak fine subangular blocky structure; friable, few fine roots; mixing of Ap horizon in root holes; few patchy clay films on faces of most peds; few small nodules of ironstone and manganese concretions; strongly acid; clear smooth boundary.

B21t—11 to 48 inches; dark red (2.5YR 3/6) sandy clay; moderate medium subangular blocky structure; friable; few fine roots; many nearly continuous clay films on faces of peds; common small nodules of ironstone and manganese concretions; very strongly acid; gradual smooth boundary.

B22t—48 to 65 inches; dark red (2.5YR 3/6) sandy clay; weak medium subangular blocky structure; firm; few fine roots; common patchy clay films on faces of peds; small nodules of ironstone and manganese concretions; very strongly acid.

Solum thickness is 72 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Small nodules of ironstone and manganese concretions are few or common throughout some pedons.

The Ap horizon is 5 to 9 inches thick. It has hue of 2.5YR or 7.5YR, value of 3, and chroma of 2 or 4; or it has hue of 5YR, value of 3, and chroma of 2 to 4.

The B1 horizon has hue of 2.5YR or 5YR, value of 3, and chroma of 4 or 6. It is sandy clay loam, sandy clay, or clay loam.

The Bt horizon is 2.5YR 3/4 or 3/6, or it is 5YR 3/4. It is clay or sandy clay. Some pedons have brown and red mottles in the Bt horizon at a depth of 40 inches or more.

Herod Series

The Herod series consists of poorly drained soils that are moderately permeable. These soils formed in loamy alluvial sediment on flood plains. The water table is at a depth of 0.5 foot to 1.5 feet from winter to early spring. Slope is 0 to 2 percent.

Herod soils are on the same landscape as the Meggett and Muckalee soils. Meggett soils are in a fine family and commonly are on the wider part of the flood plain. Muckalee soils are in a coarse-loamy family.

Typical pedon of Herod loam, in an area of Herod-Muckalee association, on the flood plain of Pachitla Creek, 600 feet downstream from Georgia Highway 37 and 100 feet east of the main creek channel; in Calhoun County:

A1—0 to 4 inches; brown (10YR 4/3) loam; common thin sand strata (0.2 inch thick); moderate medium granular structure; friable; many fine and medium roots; many partially decayed bits of forest litter; medium acid; clear wavy boundary.

C1g—4 to 18 inches; gray (10YR 5/1) sandy clay loam; common thin sand strata (0.2 inch thick); common fine prominent strong brown (7.5YR 5/6) mottles; massive; friable; many fine and medium roots; few bits of partially decomposed forest litter; medium acid; gradual wavy boundary.

C2g—18 to 33 inches; gray (5Y 5/1) sandy clay loam; common thin strata of loamy sand (0.2 inch thick); common medium distinct dark gray (10YR 4/1) mottles and few fine distinct strong brown (7.5YR 5/6) mottles; massive; friable; few fine and medium roots; few bits of partially decomposed forest litter; medium acid; gradual wavy boundary.

C3g—33 to 45 inches; light gray (5Y 6/1) sandy clay loam; common thin strata (0.2 inch thick) and few small pockets (2 inches in diameter) of sand; few fine distinct light yellowish brown (10YR 6/4) mottles; massive; friable; neutral; gradual wavy boundary.

C4g—45 to 62 inches; mottled gray (5Y 6/1) and light gray (5Y 7/1) sandy loam; small pockets and thin strata of sand and sandy clay loam; massive; friable; neutral.

Sediment thickness is 60 inches or more. The A horizon is strongly acid or medium acid, and the C horizon is medium acid through neutral.

The A horizon is 3 to 5 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 or 3; or it is 10YR 5/1. A sand or loamy sand subsurface horizon, 3 to 10 inches thick, is in some pedons.

The C horizon has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1; or it is 2.5Y 6/2 or 5Y 7/2. Few or common gray or brown mottles are in some pedons. Thin sand or clay strata are common throughout the C horizon; however, clay loam, loam, or sandy clay loam is predominant in the control section. Below the control section, the Cg horizon commonly is sandy loam, but it also is sand, loamy sand, and sandy clay loam.

Hornsville Series

The Hornsville series consists of moderately well drained soils that have moderately slow permeability. These soils formed mainly in clayey sediment on stream terraces. The water table is at a depth of 2.5 to 3.5 feet from winter to mid-spring. Slope is 0 to 2 percent.

Hornsville soils are associated with Buncombe, Kolomoki, and Riverview soils. Excessively drained Buncombe soils and well drained Riverview soils are on flood plains. Buncombe soils are mainly sandy throughout; Riverview soils are loamy. Kolomoki soils are well drained.

Typical pedon of Hornsville fine sandy loam, 0.3 mile north of the Early County and Seminole County line, 0.7 mile east of the Chattahoochee River; in Early County:

Ap1—0 to 2 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; many fine and very fine roots; strongly acid; abrupt smooth boundary.

Ap2—2 to 8 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and very fine roots; strongly acid; clear wavy boundary.

B21t—8 to 13 inches; yellowish red (5YR 5/6) sandy clay; few medium prominent light gray (5Y 6/1) mottles; moderate medium subangular blocky structure; firm; thin patchy clay films on a few faces of peds; common fine roots; very strongly acid; clear smooth boundary.

B22t—13 to 30 inches; mottled yellowish brown (10YR 5/6), red (2.5YR 4/6), and light olive gray (5Y 6/2) clay; moderate fine subangular blocky structure; very firm; thin patchy clay films on few faces of peds; common fine roots; few fine flakes of mica; very strongly acid; clear smooth boundary.

B23tg—30 to 50 inches; light gray (5Y 6/1) sandy clay; common medium distinct yellowish brown (10YR 5/6) mottles and common medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; very firm; thin patchy clay films on faces of most peds; common fine flakes of mica; few fine roots; very strongly acid; gradual wavy boundary.

B3g—50 to 60 inches; light gray (5Y 6/1) sandy clay loam; many medium and coarse light olive brown (2.5Y 5/4) mottles; weak medium subangular blocky structure; firm; thin patchy clay films on faces of a few peds; few fine roots; common fine flakes of mica; common medium pockets of sandy loam; very strongly acid; clear wavy boundary.

C—60 to 68 inches; light yellowish brown (10YR 6/4) sandy loam; many medium prominent light gray (5Y 6/1) mottles; massive; very friable; common fine flakes of mica.

Solum thickness is 50 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 5 to 8 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2; or it is 2.5Y 4/2.

The B1 horizon, if present, has hue of 5YR, value of 4, and chroma 6 or 8; or has hue of 7.5YR, value of 5, and chroma of 6 or 8; or has hue of 10YR, value of 5 or 6, and chroma of 6. Mottles are few or common, fine and medium, yellowish red and very pale brown. The B1 horizon is sandy clay loam or sandy loam.

The B21t horizon and B22t horizon have hue of 5YR, value of 4 or 5, and chroma of 6 or 8; or they have hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8. Mottles are few to many, light gray, red, and brownish yellow. These horizons are sandy clay or clay. The B23tg horizon is mottled in different shades of gray, red, brown, and yellow; or this horizon is dominantly gray and has brown, yellow, and red mottles. This horizon is sandy clay loam or sandy clay.

The B3 horizon and C horizon are mottled in different shades of gray, red, brown, and yellow. The B3 horizon is sandy clay loam or sandy loam. The C horizon is sandy loam, loamy sand, or sand.

The Hornsville soils in the survey area are considered a taxadjunct to the series because their clay mineralogy is mixed rather than kaolinitic. This difference does not affect the use, management, or behavior of the soils.

Kolomoki Series

The Kolomoki series consists of well drained soils that have moderate permeability. These soils formed in clayey sediment on terraces of the larger streams. Slope is 0 to 5 percent.

Kolomoki soils are associated with Buncombe, Hornsville, and Riverview soils. Excessively drained Buncombe soils and well drained Riverview soils are on flood plains. Buncombe soils are mainly sandy throughout; Riverview soils are loamy. Moderately well drained Hornsville soils are on the same landscape as the Kolomoki soils.

Typical pedon of Kolomoki fine sandy loam, 0 to 2 percent slopes, 13.0 miles west of Blakely, 0.2 mile east of Gilbert Landing, near the Chattahoochee River; in Early County:

Ap—0 to 8 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; few fine flakes of mica; slightly acid; clear smooth boundary.

B2t—8 to 28 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; common very fine and fine roots; few fine flakes of mica; strongly acid; gradual smooth boundary.

B3—28 to 33 inches; yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; sand grains bridged and coated with clay; few fine roots; few fine flakes of mica; very strongly acid; clear wavy boundary.

C1—33 to 42 inches; strong brown (7.5YR 5/6) sandy loam; massive; few very fine roots; common fine flakes of mica; very strongly acid; clear wavy boundary.

C2—42 to 65 inches; strong brown (7.5YR 5/8) sand; single grained; loose; common fine flakes of mica; very strongly acid.

Solum thickness is 30 to 55 inches. The soil is very strongly acid to medium acid throughout except for the surface layer in limed areas. Few or common fine flakes of mica are throughout the soil.

The Ap horizon is 7 to 9 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 3 or 4.

The B1 horizon, if present, has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 or 6; or it has hue of 5YR or 7.5YR, value of 5, and chroma of 8. It is sandy loam or sandy clay loam.

The B2t horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6; or it has hue of 2.5YR or 5YR,

value of 5, and chroma of 8. Few or common brownish and yellowish mottles are in some pedons.

The B3 horizon has hue of 5YR or 7.5YR or 10YR, value of 5, and chroma of 6 or 8; or has hue of 5YR or 7.5YR or 10YR, value of 4, and chroma of 6; or has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8. It is sandy clay loam or sandy loam.

The C horizon has hue of 5YR, 7.5YR, or 10YR; value of 5 or 6; and chroma of 6 or 8. It is sand, loamy sand, sandy loam, or sandy clay loam. Few or common brownish or yellowish mottles are in some pedons. Some pedons are stratified with contrasting textures below a depth of 40 inches.

Lakeland Series

The Lakeland series consists of excessively drained soils that are very rapidly permeable. These soils formed in thick beds of sandy sediment on uplands. Slope is 1 to 8 percent.

Lakeland soils are on the same landscape as the Troup and Wagram soils. Troup soils are grossarenic. Wagram soils are arenic.

Typical pedon of Lakeland sand, in an area of Troup-Lakeland association, 1 to 5 percent slopes, 1.3 miles northeast of the Great Southern Paper Mill main building, 0.4 mile southwest of Liberty Church; in Early County:

A1—0 to 6 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; many fine roots; strongly acid; clear smooth boundary.

C1—6 to 24 inches; yellowish brown (10YR 5/4) sand; single grained; loose; few very fine roots; very strongly acid; gradual smooth boundary.

C2—24 to 54 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; few very fine roots; very strongly acid; gradual smooth boundary.

C3—54 to 82 inches; pale brown (10YR 6/3) sand that has pockets of white (10YR 8/1) uncoated sand grains; single grained; loose; very strongly acid.

Thickness of the sand is 80 inches or more. The soil is strongly acid or very strongly acid.

The A horizon is 5 to 8 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2; or it is 10YR 4/3.

The C horizon has hue of 10YR; value of 5 to 7; and chroma of 3, 4, or 6.

Lucy Series

The Lucy series consists of well drained soils that formed in sandy and loamy marine sediment on uplands. Permeability is moderately rapid in the upper part of the soil and moderate in the lower part. Slope is 0 to 8 percent.

Lucy soils are on the same landscape as the Orangeburg, Troup, and Wagram soils. Orangeburg soils have a sandy A horizon less than 20 inches thick. Troup soils are grossarenic. Wagram soils have a brownish or yellowish Bt horizon.

Typical pedon of Lucy loamy sand, 0 to 5 percent slopes, 325 feet south of Liberty Church, 2.0 miles west of Cedar Springs; in Early County:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—8 to 22 inches; brown (7.5YR 5/4) loamy sand; weak medium granular structure; very friable; common fine roots; mixing of Ap horizon in root holes; very strongly acid; clear smooth boundary.

A3—22 to 29 inches; yellowish red (5YR 5/6) loamy sand; weak medium granular structure; common fine roots; very strongly acid; clear smooth boundary.

B21t—29 to 42 inches; yellowish red (5YR 5/6) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

B22t—42 to 52 inches; yellowish red (5YR 5/6) sandy clay loam; few medium prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

B23t—52 to 80 inches; red (2.5YR 4/6) sandy clay loam; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; few very fine roots; sand grains coated and bridged with clay; patchy clay films on faces of a few peds; very strongly acid.

Solum thickness is 80 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 20 to 38 inches thick. The Ap horizon is 8 to 10 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 2 or 3; or it has hue of 7.5YR, value of 3 or 4, and chroma of 2. The A2 horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6; or it has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 8. The A3 horizon has hue of 5YR, value of 4 or 5, and chroma of 6; or it is 5YR 5/8.

The Bt horizon has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8; or has hue of 5YR, value 4 or 5, and chroma of 6; or it is 5YR 5/8. The Bt horizon is sandy clay loam or sandy loam.

Marlboro Series

The Marlboro series consists of well drained soils that are moderately permeable. These soils formed

dominantly in clayey marine sediment on uplands. Slope is 0 to 5 percent.

Marlboro soils are on the same landscape as the Faceville, Greenville, and Tifton soils. Faceville soils have a red B horizon, and Greenville soils have a dark red B horizon. Tifton soils are in a fine-loamy family and contain significant amounts of plinthite.

Typical pedon of Marlboro sandy loam, 0 to 2 percent slopes, 0.3 mile north on U.S. Highway 27 from Breastworks Branch Crossing, 2.0 miles north on Kolomoki State Park Road, 0.5 mile west on dirt road, 100 feet north of the dirt road; in Early County:

Ap—0 to 8 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; common fine roots; small clods of B1 horizon mixed in by deep plowing; strongly acid; abrupt smooth boundary.

B1—8 to 12 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky; common fine roots; strongly acid; clear smooth boundary.

B21t—12 to 26 inches; yellowish brown (10YR 5/6) sandy clay; moderate medium subangular blocky structure; friable, very sticky; few thin patchy clay films on faces of most peds; few fine roots; few small nodules of ironstone; strongly acid; gradual smooth boundary.

B22t—26 to 48 inches; yellowish brown (10YR 5/8) sandy clay; common medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable, sticky; few thin patchy clay films on faces of most peds; few very fine roots; few small nodules of ironstone; very strongly acid; gradual smooth boundary.

B23t—48 to 56 inches; yellowish brown (10YR 5/8) sandy clay; common medium distinct strong brown (7.5YR 5/6) mottles, common medium distinct very pale brown (10YR 7/3) mottles and few fine prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; sticky; few thin patchy clay films on faces of some peds; few very fine roots; very strongly acid; clear wavy boundary.

B24t—56 to 65 inches; mottled strong brown (7.5YR 5/6), yellowish brown (10YR 5/8), red (2.5YR 4/6), and light gray (10YR 7/2) sandy clay; weak medium subangular blocky structure; friable; sticky; thin patchy clay films on faces of some peds; few very fine roots; 4 percent nodular plinthite; very strongly acid.

Solum thickness is 65 to 72 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 5 to 10 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 2 to 4.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8.

The Bt horizon has hue of 7.5YR or 10YR, value of 5, and chroma of 6 or 8. It is sandy clay or clay. Reddish or brownish mottles are in many pedons, commonly at a depth of more than 30 inches. The lower part of the Bt horizon commonly is reticulately mottled brownish, reddish, and grayish. Small nodules of ironstone are in some pedons. Some pedons contain as much as 4 percent plinthite in the lower part of the Bt horizon.

The Marlboro soils in the survey area are considered a taxadjunct to the series because they are mottled with brownish colors in the middle part of the Bt horizon.

Meggett Series

The Meggett series consists of poorly drained, slowly permeable soils that formed in clayey alluvial sediment on flood plains and stream terraces. The water table is at a depth of 1.0 foot or less from late fall to mid-spring. Slope is 0 to 2 percent.

Meggett soils are on the same landscape as the Herod and Muckalee soils. Herod soils are in a fine-loamy family. Muckalee soils are in a coarse-loamy family.

Typical pedon of Meggett loam, in an area of Meggett-Muckalee association on the flood plain of Dry Creek, 600 feet south of the paved road crossing Dry Creek, 1.5 miles east of Hen Town, 1,000 feet east of the main run of the creek; in Early County:

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loam; moderate medium granular structure; friable; many fine and medium roots; medium acid; abrupt smooth boundary.

B21tg—4 to 18 inches; gray (10YR 5/1) clay; few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; firm; common fine and medium roots; few patchy clay films on faces of some peds; few fine strata of loamy sand; medium acid; gradual wavy boundary.

B22tg—18 to 36 inches; light gray (10YR 6/1) clay; common medium distinct dark yellowish brown (10YR 4/4) mottles; moderate medium angular blocky structure; very firm, very sticky; few fine and medium roots; few thin patchy clay films on faces of some peds; few fine strata of sandy loam; neutral; gradual wavy boundary.

B23tg—36 to 52 inches; gray (5Y 5/1) clay; few fine distinct light yellowish brown (10YR 6/4) mottles; moderate medium angular blocky structure; firm, sticky; few thin patchy clay films on faces of some peds; neutral; gradual wavy boundary.

B3g—52 to 62 inches; light gray (5Y 6/1) sandy clay; few thin strata of sandy clay loam; weak medium subangular blocky structure; firm, sticky; neutral.

Solum thickness is 50 to 65 inches or more. The A horizon is strongly acid or medium acid. The B horizon is medium acid to neutral.

The A horizon is 3 to 5 inches thick. It has hue of 10YR, value of 2 to 5, and chroma of 1 or 2.

The Btg horizon has hue of 10YR or 5Y, value of 4 to 6, and chroma of 1 or 2; or it has hue of 2.5Y, value of 4 to 6, and chroma of 2. Few or common mottles higher in chroma are throughout the horizon in some pedons.

The B3g horizon has colors like those of the Btg horizon. It is sandy clay or sandy clay loam. Some pedons are underlain by loamy material at a depth slightly below 50 inches.

Muckalee Series

The Muckalee series consists of poorly drained soils that are moderately permeable. These soils formed in sandy and loamy alluvial sediment on flood plains. The water table is at a depth of 0.5 foot to 1.5 feet from late fall to mid-spring. Slope is 0 to 2 percent.

Muckalee soils are on the same landscape as the Herod and Meggett soils. Herod soils are in a fine-loamy family. Meggett soils are in a fine family and commonly are on the wider part of the flood plain.

Typical pedon of Muckalee loam, in an area of Herod-Muckalee association, on the flood plain of Ichawaynochaway Creek, 600 feet downstream from Georgia Highway 37, 150 feet east from the main creek channel; in Calhoun County:

A1—0 to 5 inches; dark grayish brown (10YR 4/2) loam; common thin sand strata (0.2 inch thick); weak medium granular structure; friable; many fine and medium roots; few bits of partially decayed forest litter; strongly acid; clear wavy boundary.

C1g—5 to 12 inches; gray (10YR 5/1) sandy clay loam; few fine distinct strong brown (7.5YR 5/6) mottles; common thin sand strata (0.1 inch thick); massive; friable; common fine and medium roots; few bits of partially decayed forest litter; medium acid; clear, smooth boundary.

C2g—12 to 42 inches; gray (5Y 5/1 and 5Y 6/1) sandy loam that is stratified; common thin sand strata (0.2 inch thick); massive; friable; few fine and medium roots; few bits of partially decayed forest litter; medium acid; clear wavy boundary.

C3g—42 to 52 inches; gray (5Y 6/1) loamy sand; common thin strata and small pockets of sand and sandy loam; single grained; very friable; neutral; clear wavy boundary.

C4g—52 to 62 inches; gray (5Y 6/1) sand; small pockets of sandy loam; single grained; very friable; neutral.

Sediment thickness is 60 inches or more. The A horizon is strongly acid or medium acid; the C horizon is medium acid through neutral.

The A horizon commonly is 3 to 5 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. A sand or loamy sand subsurface horizon 3 to 10 inches thick is in some pedons.

The C horizon has hue of 10YR or 5Y, value of 4 to 6, and chroma of 1. If present, this horizon has few or common gray or strong brown mottles. Thin sand strata are common throughout the sandy or loamy C horizon, but the 10- to 40-inch control section is predominantly sandy loam. Below the control section, the Cg horizon is loamy sand or sand, but some pedons have sandy clay loam strata.

Nankin Series

The Nankin series consists of well drained soils that have moderately slow permeability. These soils formed in predominantly clayey marine sediment on uplands. Slope is 2 to 8 percent.

Nankin soils are on the same landscape with Carnegie, Esto, Norfolk, Orangeburg, and Tifton soils. These associated soils are Paleudults. Carnegie soils are in a fine family, and Norfolk, Orangeburg, and Tifton soils are in a fine-loamy family; Carnegie and Tifton soils contain plinthite.

Typical pedon of Nankin sandy loam, in an area of Nankin-Esto sandy loams, 5 to 8 percent slopes, eroded, 0.3 mile east of Kirkland Creek on paved road that crosses the creek just below the dam at Howard's Mill, 0.2 mile southwest on dirt road, in east roadcut; in Early County:

Ap—0 to 6 inches; dark brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

B1—6 to 10 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium subangular blocky structure; friable; few patchy clay films on faces of peds; common fine and medium roots; strongly acid; clear wavy boundary.

B21t—10 to 24 inches; strong brown (7.5YR 5/6) sandy clay; few medium distinct yellowish red (5YR 5/6) mottles; strong medium angular blocky structure; firm; many continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—24 to 34 inches; yellowish brown (10YR 5/6) sandy clay; common medium distinct light gray (10YR 7/2) mottles and common medium prominent red (2.5YR 4/6) mottles; strong medium angular blocky structure; firm; many continuous clay films on faces of peds; few fine roots; very strongly acid; gradual wavy boundary.

B3—34 to 48 inches; mottled yellowish red (5YR 5/6), yellowish brown (10YR 5/6), light gray (10YR 7/2), and red (2.5YR 4/6) sandy clay loam; pockets and thin veins of sandy clay; weak medium subangular

blocky structure; firm; common patchy clay films on faces of peds; few fine roots; very strongly acid; gradual wavy boundary.

C—48 to 65 inches; mottled light gray (10YR 8/1), yellowish brown (10YR 5/6), yellowish red (5YR 5/6), and red (2.5YR 4/6) sandy clay loam; thin strata and veins of sandy loam and sandy clay loam; massive parting to weak coarse subangular blocky structure; very firm and cemented in places; very strongly acid.

Solum thickness is 40 to 60 inches or more. The soil is strongly acid or very strongly acid except for the surface layer in limed areas.

The A horizon is 3 to 9 inches thick. The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The B1 horizon, if present, has hue of 5YR to 10YR, value of 5 or 6, and chroma of 4 or 6. It is sandy loam or sandy clay loam.

The Bt horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6; or it is 10YR 5/4, 5/6, or 5/8. The lower part has reddish, brownish, yellowish, and gray mottles. Gray mottles are caused by minerals of the parent material. The upper part of the subsoil dominantly is sandy clay or clay, and the lower part is sandy clay loam or sandy clay.

The B3 horizon is mottled reddish, yellowish, brownish, or grayish. It is sandy clay loam or sandy loam.

The C horizon is mottled reddish, yellowish, brownish, and grayish; and some pedons are mainly gray. Commonly, this horizon has veins and thin strata that are clayey and sandy.

Norfolk Series

The Norfolk series consists of well drained soils that are moderately permeable. These soils formed dominantly in loamy marine sediment on uplands. Slope is 0 to 5 percent.

Norfolk soils are associated with Goldsboro, Grady, Orangeburg, Tifton, and Wagram soils. Moderately well drained Goldsboro soils are in low-lying areas of uplands. Poorly drained Grady soils have a clayey subsoil and are in depressions. Orangeburg, Tifton, and Wagram soils are on the same landscape. Orangeburg soils have a predominantly red subsoil. Tifton soils contain plinthite. Wagram soils are arenic.

Typical pedon of Norfolk loamy sand, 0 to 2 percent slopes, 4.0 miles east of Cedar Springs to Bethel Primitive Baptist Church, 2.0 miles north of the church on county dirt road, 0.3 mile west of the road; in Early County:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many very fine roots; few small nodules of ironstone; very strongly acid; abrupt smooth boundary.

B1—9 to 14 inches; yellowish brown (10YR 5/4) sandy loam; weak fine subangular blocky structure; very friable; common fine roots; few small nodules of ironstone; very strongly acid; clear smooth boundary.

B21t—14 to 38 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few very fine roots; few patchy clay films on faces of peds; few small nodules of ironstone; very strongly acid; gradual smooth boundary.

B22t—38 to 56 inches; brownish yellow (10YR 6/6) sandy clay loam; moderate medium subangular blocky structure; friable; few very fine roots; few patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

B23t—56 to 60 inches; brownish yellow (10YR 6/6) sandy clay loam; few medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

B3—60 to 70 inches; brownish yellow (10YR 6/6) sandy clay loam; few medium distinct white (10YR 8/2) and strong brown (7.5YR 5/6) mottles and few medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; 3 percent plinthite; very strongly acid.

Solum thickness is 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. If present, nodules of ironstone make up as much as 4 percent of the solum.

The A horizon is 7 to 18 inches thick. The Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 4. The A2 horizon, if present, is 2.5Y 6/4, or it is 10YR 5/4 or 6/4.

The B1 horizon has hue of 10YR, value of 5, and chroma of 4, 6, or 8.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8; or has hue of 7.5YR, value of 5, and chroma of 6 or 8; or it is 2.5Y 5/6. Gray mottles are at a depth of 55 inches or more in some pedons.

Ocilla Series

The Ocilla series consists of somewhat poorly drained soils that are moderately permeable. These soils formed in sandy and loamy marine sediment on uplands. The water table is at a depth of 1.0 foot to 2.5 feet from winter to mid-spring. Slope is 0 to 2 percent.

Ocilla soils are associated with Goldsboro, Grady, Pelham, and Rains soils. Moderately well drained Goldsboro soils are on the same landscape as the Ocilla soils; however, they have an A horizon less than 20 inches thick. Poorly drained Grady, Pelham, and Rains soils are in lower lying areas; Grady and Rains soils have

an A horizon less than 20 inches thick, and Grady soils have a clayey subsoil.

Typical pedon of Ocilla loamy sand, 0.3 mile west on Georgia Highway 200 from Mount Zion Church to a county road crossing, 0.3 mile south on county road, 0.25 mile east of the road; in Early County:

Ap—0 to 7 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

A21—7 to 20 inches; pale yellow (2.5Y 7/4) loamy sand; weak medium granular structure; very friable; common fine and medium roots; very strongly acid; clear smooth boundary.

A22—20 to 34 inches; pale yellow (2.5Y 7/4) loamy sand; few medium distinct yellow (10YR 7/6) mottles and few fine faint light gray mottles; weak medium granular structure; very friable; few fine and medium roots; very strongly acid; clear smooth boundary.

B1—34 to 42 inches; brownish yellow (10YR 6/6) sandy loam; few fine distinct light gray (10YR 7/2) mottles and common medium very pale brown (10YR 7/3) mottles; weak fine subangular blocky structure; very friable; very strongly acid; clear smooth boundary.

B21t—42 to 56 inches; mottled yellowish brown (10YR 5/6), light gray (10YR 7/1), and strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B22t—56 to 68 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

Solum thickness is 75 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 20 to 36 inches thick. The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 4 to 7, and chroma of 1 to 4; or it has hue of 2.5Y, value of 5 to 7, and chroma of 2 or 4.

The B1 horizon has hue of 10YR, value of 5 to 7, and chroma of 4, 6, or 8; or has hue of 2.5Y, value of 6 or 7, and chroma of 4, 6, or 8; or it is 2.5Y 5/4 or 5/6. Few or common light gray mottles are in some pedons.

The B21t horizon has hue of 2.5Y, value of 6 or 7, and chroma of 4 or 6; or it has hue of 10YR, value of 5 to 7, and chroma of 4, 6, or 8. Commonly, mottles are gray and brown.

The B22t horizon is 10YR 7/1 or is mottled grayish, yellowish, brownish, and reddish.

Orangeburg Series

The Orangeburg series consists of well drained soils that are moderately permeable. These soils formed predominantly in loamy marine sediment on uplands. Slope is 0 to 25 percent.

Orangeburg soils commonly are on the same landscape as the Faceville, Lucy, and Red Bay soils. Faceville soils are in a clayey family. Lucy soils are arenic. Red Bay soils are rhodic. In places, moderately steep Orangeburg soils are on the same hillside as the Esto and Troup soils. Esto soils are in a clayey family; Troup soils are grossarenic.

Typical pedon of Orangeburg loamy sand, 2 to 5 percent slopes, 1.7 miles south on paved county road from Spring Creek Baptist Church, 300 feet east of the road; in Calhoun County:

Ap—0 to 8 inches; dark brown (10YR 4/3) loamy sand; weak medium granular structure; very friable; common fine roots; small pieces of the B1 horizon mixed with the Ap horizon; strongly acid; abrupt smooth boundary.

B1—8 to 15 inches; yellowish red (5YR 4/6) sandy loam; weak fine subangular blocky structure; very friable; common fine roots; mixing of Ap horizon in root holes is common; few fine pores; strongly acid; clear smooth boundary.

B21t—15 to 27 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of most peds; common fine pores; very strongly acid; gradual smooth boundary.

B22t—27 to 53 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of most peds; few fine pores; very strongly acid; gradual smooth boundary.

B23t—53 to 65 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of a few peds; few fine pores; very strongly acid.

Solum thickness is 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Nodules of ironstone are few throughout some pedons.

The A horizon is 6 to 17 inches thick. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4; or it has hue of 7.5YR, value of 4 or 5, and chroma of 2 or 4.

The B1 horizon has hue of 5YR, 7.5YR, and 10YR. It has value of 5 and chroma of 4, 6, or 8; or it has value of 4 and chroma of 4 or 6.

The Bt horizon has hue of 5YR and value of 5, chroma of 6 or 8, or has value of 4, chroma of 6; or it has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8. The B23t

horizon has few or common brown and red mottles in some pedons. The Bt horizon commonly is sandy clay loam, but some pedons are sandy loam in the upper part and sandy clay below a depth of 40 inches.

Pelham Series

The Pelham series consists of poorly drained soils that are moderately permeable. These soils formed in sandy and loamy marine sediment on uplands. The water table commonly is at a depth of 0.5 foot to 1.5 feet from mid-winter to mid-spring. Slope is 0 to 2 percent.

Pelham soils are associated with Ocilla and Rains soils. Somewhat poorly drained Ocilla soils are on slightly higher lying uplands. Rains soils are on the same landscape as the Pelham soils; however, they have a sandy surface layer less than 20 inches thick.

Typical pedon of Pelham loamy sand, 0.5 mile north of Georgia Highway 200 at Mount Zion Church, 0.3 mile west; in Early County:

A1—0 to 4 inches; very dark gray (10YR 3/1) loamy sand; weak medium granular structure; very friable; many fine and medium roots; strongly acid; abrupt wavy boundary.

A21—4 to 9 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; many fine and medium roots; mixing of A1 horizon in root holes; strongly acid; clear wavy boundary.

A22—9 to 25 inches; light gray (10YR 7/2) sand; single grained; loose; sand grains are coated; common fine and medium roots; very strongly acid; clear smooth boundary.

B21tg—25 to 40 inches; light gray (5Y 6/1) sandy clay loam; common medium and coarse distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

B22tg—40 to 65 inches; light gray (5Y 7/1) sandy clay loam that has small pockets of sandy clay; many medium distinct yellowish brown (10YR 5/8) mottles; and few medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

Solum is 60 to 72 inches or more thick. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 20 to 40 inches thick. The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 1. The A2 horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 4 to 7, and chroma of 2.

The B1 horizon, if present, has hue of 10YR or 5Y, value of 5 to 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 5 to 7, and chroma of 2. This horizon is sandy loam or sandy clay loam.

The B2t horizon has hue of 10YR or 2.5Y or 5Y, value of 5 to 7, and chroma of 2, or it is neutral and has value of 5 to 7. In most pedons, few to many brown or red mottles are throughout the horizon. This horizon commonly is sandy clay loam, but the upper part in some pedons is sandy loam.

Rains Series

The Rains series consists of poorly drained soils that are moderately permeable. These soils formed in loamy marine sediment on uplands. The water table commonly is within a depth of 1.0 foot from late fall to mid-spring. Slope is 0 to 2 percent.

Rains soils are associated with Goldsboro, Grady, Ocilla, and Pelham soils. Moderately well drained Goldsboro soils and somewhat poorly drained Ocilla soils are on slightly higher lying uplands; in addition, Ocilla soils are arenic. Grady soils and Pelham soils are on the same landscape as the Rains soils; however, Grady soils are in a clayey family, and Pelham soils are arenic.

Typical pedon of Rains loamy sand, 1.0 mile south of Georgia Highway 234, 1.3 miles west of Georgia Highway 55; in Calhoun County:

A1—0 to 4 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

A21—4 to 9 inches; grayish brown (10YR 5/2) loamy sand; weak medium granular structure; very friable; common fine roots; very strongly acid; clear smooth boundary.

A22—9 to 15 inches; light brownish gray (10YR 6/2) loamy sand; weak medium granular structure; very friable; common fine roots; very strongly acid; clear smooth boundary.

B1g—15 to 22 inches; light brownish gray (10YR 6/2) sandy loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; very friable; few fine roots; sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

B21tg—22 to 32 inches; light gray (10YR 7/2) sandy clay loam; common medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

B22tg—32 to 56 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct light yellowish brown (10YR 6/4) mottles and few medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine

roots; patchy clay films on faces of a few peds; very strongly acid; clear smooth boundary.
B23tg—56 to 68 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak coarse subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

Solum thickness is 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout.

The A horizon is 8 to 18 inches thick. The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2; or it is 2.5Y 3/2 or 4/2. The A2 horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2; or it has hue of 2.5Y, value of 4 to 6, and chroma of 2.

The Bt horizon has hue of 10YR or 5Y, value of 5 to 7, and chroma of 1 or 2; or it has hue of 2.5Y, value of 5 to 7, and chroma of 2. Few to many fine or medium yellowish brown and red mottles are throughout the horizon.

Red Bay Series

The Red Bay series consists of well drained soils that are moderately permeable. These soils formed predominantly in loamy marine sediment on uplands. Slope is 0 to 12 percent.

Red Bay soils are on the same landscape as the Greenville, Lucy, and Orangeburg soils. Greenville soils have a clayey B horizon. Lucy soils are arenic. Orangeburg soils have a red B horizon.

Typical pedon of Red Bay sandy loam, 0 to 2 percent slopes, 0.5 mile west on Georgia Highway 62 from Ichawaynochaway Creek, 300 feet north of the highway; in Calhoun County:

Ap—0 to 8 inches; dark reddish brown (5YR 3/4) sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; abrupt smooth boundary.
B1—8 to 14 inches; dark red (2.5YR 3/6) sandy clay loam; weak fine subangular blocky structure; friable; common fine roots; sand grains coated and bridged with clay; mixing of Ap horizon in root holes; very strongly acid; clear smooth boundary.
B21t—14 to 36 inches; dark red (2.5YR 3/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few patchy clay films on faces of most peds; very strongly acid; gradual smooth boundary.
B22t—36 to 65 inches; dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few patchy clay films on faces of most peds; very strongly acid.

Solum thickness is 60 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 5 to 10 inches thick. It has hue of 2.5YR or 7.5YR, value of 3, and chroma of 2 or 4; or it has hue of 5YR, value of 3, and chroma of 2 to 4.

The B1 horizon, if present, has hue of 2.5YR, value of 3, and chroma of 4 or 6; or it is 5YR 3/4.

The Bt horizon has hue of 2.5YR or 10R, value of 3, and chroma of 6. It is sandy clay loam or sandy loam.

Riverview Series

The Riverview series consists of well drained soils that are moderately permeable. These soils formed in loamy alluvial sediment on flood plains near the Chattahoochee River. The water table is at a depth of 3.0 to 5.0 feet in winter and early spring. Slope is 0 to 2 percent.

Riverview soils are associated with Buncombe, Hornsville, and Kolomoki soils. Buncombe soils are on the same landscape as the Riverview soils. Hornsville and Kolomoki soils are on stream terraces. Excessively drained Buncombe soils are mainly sandy throughout. Moderately well drained Hornsville soils and well drained Kolomoki soils have a clayey subsoil.

Typical pedon of Riverview loam, 1.3 miles east on U.S. Highway 84 from the Chattahoochee River, 1,050 feet south of the highway; in Early County:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) loam; weak medium granular structure; very friable; many fine roots; common very fine flakes of mica; medium acid; clear smooth boundary.
B21—8 to 21 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable; common very fine roots; common fine flakes of mica; strongly acid; gradual smooth boundary.
B22—21 to 32 inches; strong brown (7.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common very fine roots; common fine flakes of mica; strongly acid; gradual smooth boundary.
B23—32 to 39 inches; strong brown (7.5YR 5/6) loam; weak medium subangular blocky structure; friable; few very fine roots; common fine flakes of mica; strongly acid; clear wavy boundary.
C1—39 to 65 inches; strong brown (7.5YR 5/8) sandy loam; massive; very friable; common fine flakes of mica; strongly acid.

Solum thickness is 24 to 40 inches. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 8 to 11 inches thick. It has hue of 7.5YR, value of 3 to 5, and chroma of 2 or 4; or it has hue of 10YR, value of 3 to 5, and chroma of 2 to 4.

The B2 horizon has hue of 10YR, value of 3 to 5, and chroma of 4 or 6; or it has hue of 7.5YR, value of 4 or 5, and chroma of 4 or 6. This horizon is silty clay loam, sandy clay loam, or loam.

The B3 horizon has hue of 10YR, 7.5YR, or 5YR; value of 4 or 5; and chroma of 4 or 6. This horizon is sandy clay loam, loam, or sandy loam. Thin sandy strata are in some pedons.

The C horizon is fine sandy loam, sandy loam, or sand. Thin loamy strata are in some pedons.

Tifton Series

The Tifton series consists of well drained soils that are moderately permeable. These soils formed dominantly in loamy marine sediment on uplands. Slope is 0 to 8 percent.

Tifton soils are on the same landscape as the Carnegie, Faceville, and Norfolk soils. Carnegie soils are in a clayey family and are 5 percent or more plinthite at a depth of about 20 inches. Faceville and Norfolk soils are made up of less than 5 percent plinthite; in addition, Faceville soils have a red, clayey subsoil.

Typical pedon of Tifton loamy sand, 2 to 5 percent slopes, 0.5 mile north of Killarney Community on Georgia Highway 39 at Springfield Church, 600 feet southwest of church; in Early County:

Apcn—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; common fine roots; 15 percent small nodules of ironstone; strongly acid; abrupt smooth boundary.

B1cn—7 to 11 inches; yellowish brown (10YR 5/4) sandy loam; weak fine subangular blocky structure; friable; few fine roots; 15 percent small nodules of ironstone; strongly acid; clear smooth boundary.

B21tcn—11 to 21 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few patchy clay films on some faces of peds; few fine roots; 10 percent small nodules of ironstone; very strongly acid; gradual smooth boundary.

B22tcn—21 to 36 inches; yellowish brown (10YR 5/6) sandy clay loam; few fine prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few patchy clay films on faces of some peds; few fine roots; 10 percent small nodules of ironstone; very strongly acid; gradual smooth boundary.

B23t—36 to 46 inches; yellowish brown (10YR 5/6) sandy clay loam; few medium distinct very pale brown (10YR 7/3) mottles and common medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few patchy clay films on faces of some peds; few fine roots; few nodules of ironstone; 5 percent nodular plinthite; very strongly acid; gradual wavy boundary.

B24t—46 to 52 inches; yellowish brown (10YR 5/6) sandy clay loam; many medium prominent red (2.5YR 4/6) mottles and common medium distinct very pale brown (10YR 7/3) mottles; moderate medium subangular blocky structure; firm; few patchy clay films on faces of some peds; few nodules of ironstone; 10 percent nodular plinthite; very strongly acid; clear wavy boundary.

B25t—52 to 65 inches; mottled yellowish brown (10YR 5/6), very pale brown (10YR 7/3), red (2.5YR 4/6), and white (10YR 8/1) sandy clay loam that has small pockets of clay; weak coarse subangular blocky structure; firm; few patchy clay films on faces of some peds; few nodules of ironstone; 15 percent platy and nodular plinthite; very strongly acid.

Solum thickness is 60 inches to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 6 to 10 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. Nodules of ironstone make up 5 to 20 percent by volume (fig. 10). It is loamy sand or sandy loam.

The B1 horizon has hue of 10YR; value of 5 or 6; and chroma of 4, 6, or 8. Nodules of ironstone make up 5 to 15 percent by volume.

The Bt horizon has hue of 10YR or 7.5YR; value of 5 or 6; and chroma of 4, 6, or 8. The volume of nodules of ironstone ranges up to 10 percent. Red, yellow, or brown mottles are few or common in the B22t horizon. Plinthite makes up 5 to 15 percent of the B23t horizon and the B3 horizon.

Troup Series

The Troup series consists of well drained soils that have a moderately permeable subsoil. These soils formed in thick sandy and loamy marine sediment on uplands. Slope is 1 to 25 percent.

Troup soils commonly are on the same landscape as the Esto, Lucy, Orangeburg, and Wagram soils. Esto soils are in a clayey family, Lucy and Wagram soils are arenic, and Orangeburg soils are in a fine-loamy family. In places, moderately steep Troup soils are on the same hillside as the Esto and Orangeburg soils.

Typical pedon of Troup sand, in an area of Troup-Lakeland association, 1 to 5 percent slopes, 0.4 mile east on Georgia Highway 62 from Chattahoochee River, 0.1 mile south of highway near electric powerline; in Early County:

Ap—0 to 8 inches; brown (10YR 4/3) sand; weak fine granular structure; very friable; common fine roots; very strongly acid; abrupt smooth boundary.

A21—8 to 24 inches; yellowish brown (10YR 5/4) sand; single grain; very friable; few fine roots; mixing of Ap horizon in root holes in the upper 10 inches of horizon; very strongly acid; gradual smooth boundary.

A22—24 to 50 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; very strongly acid; clear smooth boundary.

Figure 10.—Abundant nodules of ironstone on the surface are characteristic of Tifton loamy sand, 2 to 5 percent slopes.

A23—50 to 62 inches; pale brown (10YR 6/3) sand; single grain; loose; very friable; few fine roots; very strongly acid; clear smooth boundary.

B21t—62 to 66 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine subangular blocky structure; very friable; sand grains coated and bridged with clay; few fine roots; very strongly acid; clear smooth boundary.

B22t—66 to 78 inches; mottled yellowish brown (10YR 5/6), light yellowish brown (10YR 6/4), and very pale brown (10YR 7/3) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; very strongly acid.

Solum thickness is 80 to 120 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 45 to 72 inches thick. The Ap horizon or A1 horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 4. The A2 horizon has hue of 7.5YR or 10YR. It has value of 5 or 6 and chroma of 3, 4, 6, or 8, or it has value of 4 and chroma of 4 or 6.

The B1 horizon, if present, has hue of 5YR or 7.5YR, value of 5 or 6, and chroma of 6 or 8.

The Bt horizon has a matrix hue of 10YR to 2.5YR. The matrix has value of 5 or 6 and chroma of 4, 6, or 8; or it has value of 4 and chroma of 6. Mottles are in hue of 2.5YR or 7.5YR, value of 6 or 7, and chroma of 4; or they have hue of 5YR or 10YR, value of 6 or 7, and chroma of 3 or 4. The Bt horizon is sandy loam or sandy clay loam.

The Troup soils in the survey area are considered a taxadjunct to the series because they have mottles of chroma 3 and 4 in the Bt horizon.

Wagram Series

The Wagram series consists of well drained soils that have moderately rapid permeability. These soils formed in sandy and loamy marine sediment on uplands. Slope is 0 to 8 percent.

Wagram soils are on the same landscape as the Lakeland, Lucy, Norfolk, and Troup soils. Lucy soils have a red Bt horizon. Lakeland soils are sandy throughout. Norfolk soils have an A horizon less than 20 inches thick. Troup soils are grossarenic.

Typical pedon of Wagram loamy sand, 0 to 5 percent slopes, about 8.0 miles southeast of Bladely, 2.0 miles south of White Pond Church to unpaved county road, 0.5 mile west on unpaved road, 150 feet south of road; in Early County:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; common fine roots; very strongly acid; abrupt smooth boundary.

A2—7 to 24 inches; light yellowish brown (10YR 6/4) loamy sand; weak medium granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

B1—24 to 28 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

B21t—28 to 36 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; thin patchy clay films on faces of few peds; very strongly acid; gradual smooth boundary.

B22t—36 to 55 inches; yellowish brown (10YR 5/6) sandy clay loam; few medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; thin patchy clay films on faces of a few peds; very strongly acid; gradual smooth boundary.

B23t—55 to 68 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) mottles and few fine distinct very pale brown (10YR 7/3) mottles; friable; thin patchy clay films on faces of a few peds; very strongly acid.

Solum thickness is 60 to 80 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. If present, plinthite content is less than 5 percent.

The A horizon is 20 to 40 inches thick. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2; or it is 2.5Y 4/2 or 5/2. The A2 horizon has hue of 10YR, value of 6, and chroma of 3 or 4; or it is 2.5Y 6/4.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8; or it is 7.5YR 5/6 or 5/8. Mottles that are reddish or brownish commonly are at a depth below 40 inches. Gray mottles commonly are at a depth of 60 inches or more. The Bt horizon is sandy clay loam or sandy loam.

Formation of the Soils

This section describes the factors of soil formation and relates them to soils in the survey area. It also explains the processes of soil formation.

Factors of Soil Formation

Soil characteristics are determined by the physical and mineral composition of the parent material; the climate under which the parent material accumulated and has existed since accumulation; the plant and animal life on and in the soil; the relief, or lay of the land; and the length of time that the forces of soil formation have acted on the soil material (*4*). All of these factors influence every soil, but the significance of each factor varies from place to place. In one area, one factor may dominate soil formation; in another area, a different factor may be the most important.

The interrelationships among these five factors is complex, and the effects of any one factor cannot be isolated and completely evaluated. It is convenient, however, to discuss each factor separately and to indicate the probable effects of each.

Parent Material

Parent material is the unconsolidated mass from which soil forms. It is largely responsible for the chemical and mineralogical composition of the soil. Calhoun and Early Counties are underlain by Coastal Plain sedimentary rock (*5*). Sandy, loamy, and clayey marine sediment commonly overlies the rock.

The Claiborne Undifferentiated Formation of the Tertiary Period underlies the northern part of Calhoun and Early Counties and mainly parallels Ichawaynochaway, Merrett, Pachitla, and Little Pachitla Creeks and branches of Kolomoki Creek. The well drained Faceville, Greenville, and Orangeburg soils are the main soils that formed on uplands in sediment derived from the Claiborne Formation. These soils have a brownish, sandy or loamy surface layer and a predominantly brownish or reddish, loamy or clayey subsoil. Of lesser extent are the well drained Norfolk, Red Bay, Tifton, and Troup soils.

The Eocene and Oligocene Residuum, Undifferentiated Formation of the Tertiary Period underlies most of the northern two-thirds of Calhoun County and most of the northern one-fourth of Early County. The well drained Faceville, Greenville, Orangeburg, and Tifton soils and the moderately well drained Goldsboro soils are the main soils that formed on uplands from the Eocene and Oligocene Residuum. Most of these soils have a brownish, sandy or loamy surface layer and a reddish or predominantly brownish, loamy or clayey subsoil. A few of the soils have a grayish, sandy surface layer and a brownish, mottled, loamy subsoil. Of lesser extent are the well drained Norfolk and Red Bay soils and the poorly drained Grady soils.

The Lisbon Formation of the Tertiary Period underlies the extreme northwestern part of Early County. The well drained Troup and Wagram soils and the excessively drained Lakeland soils are the main soils that formed on uplands in sediment derived from the Lisbon Formation. Most of these soils have a brownish, sandy surface layer and thick subsurface layer and a brownish mottled subsoil. A few of the soils are brownish and sandy throughout. Of lesser extent are well drained Faceville and Orangeburg soils.

The Ocala Limestone Formation of the Tertiary Period underlies the southern one-third of Calhoun County and most of the southern three-fourths of Early County. The well drained Norfolk, Orangeburg, and Tifton soils, the moderately well drained Goldsboro soils, and the poorly drained Grady soils are the main soils that formed on uplands in the marine sediment derived from the Ocala Formation. Most of these soils have a brownish, sandy surface layer and a predominantly brownish loamy subsoil. Some of the soils have a grayish, sandy surface layer and a brownish mottled loamy subsoil. A few of the soils are mainly grayish throughout. They have a loamy surface layer and a clayey subsoil. Of lesser extent are the well drained Faceville, Greenville, and Red Bay soils and the poorly drained Rains soils.

A high stream terrace parallels the Chattahoochee River in extreme western Early County. The soils in this deposit formed in more recent sediment than the soils on uplands. However, this sediment is older than that on the lower lying alluvial plain. The well drained Kolomoki soils and the moderately well drained Hornsville soils are the main soils formed on this terrace. These soils have a brownish, loamy surface layer, a clayey subsoil that is reddish or reddish and mottled throughout, and brownish loamy or sandy underlying material.

Stream alluvium is adjacent to all the streams in the survey area. The soils in this alluvium formed in more

recent sediment than the soils formed on uplands and stream terraces. Poorly drained Herod, Meggett, and Muckalee soils are the main soils on flood plains. These soils are predominantly grayish and are clayey or loamy throughout. Of lesser extent are the excessively drained Buncombe soils and well drained Riverview soils near the Chattahoochee River.

Plants and Animals

The role of plants, animals, and other organisms is significant in soil development. Plants and animals increase the amounts of organic matter and nitrogen, increase or decrease the content of plant nutrients, and change soil structure and porosity.

Plants recycle nutrients, accumulate organic matter, and provide food and cover for animals. Plants stabilize the surface layer so that soil-forming processes can continue. Vegetation also provides a more stable environment for soil-forming processes by protecting the soils from extremes in temperature.

The soils in Calhoun and Early Counties formed under a succession of briars, brambles, and woody plants that yielded to pines and hardwood trees. Later, the hardwoods suppressed most other plants and became the climax vegetation.

Animals rearrange soil material by roughening the surface, forming and filling channels, and shaping the peds and voids. The soil is mixed by ants, wasps, worms, and spiders that make channels; by crustacea, such as crabs and crayfish; and by turtles and foxes that dig burrows. Humans affect the soil-forming process by tilling the crops, removing natural vegetation and establishing different plants, and reducing or increasing soil fertility.

Bacteria, fungi, and other micro-organisms hasten decomposition of organic matter and increase the release of minerals for plant growth.

The net gains and losses caused by plants and animals in the soil-forming process are important in Calhoun and Early Counties. The relationship between plants and animals, climate, and parent material is very close.

Climate

The present climate of Calhoun and Early Counties is thought to be similar to the climate that existed when the soils formed. The relatively high rainfall and warm temperature contribute to rapid soil formation and are the two climatic features most important to soil properties.

Water from precipitation is essential in the formation of soil. Water dissolves soluble materials and is used by plants and animals. It transports material from one part of the soil to another part or from one area to another area.

Soils in Calhoun and Early Counties formed under a thermic temperature regime; that is, the soil temperature at a depth of 20 inches averages about 66 to 67 degrees F. The rate of chemical reaction and other processes in the soil depend to some extent on temperature. In addition, temperature affects the type and quantity of vegetation, the amount and kind of organic matter accumulated in the soil, and the rate of decomposition of organic matter.

Relief

Relief is the various elevations, or inequalities of land surface, considered collectively. The color and wetness of the soil, thickness of the A horizon, content of organic matter, and plant cover are commonly related to relief. In Calhoun and Early Counties, the obvious effects of relief are color of the soil and wetness.

Norfolk and Tifton soils have mainly a yellowish brown subsoil; Grady and Rains soils are primarily gray throughout the subsoil. This color difference results from a difference in relief and a corresponding difference in internal drainage. Norfolk and Tifton soils are higher lying and better drained than the other soils; therefore, their soil material is better oxidized and the subsoil is browner.

The movement of water across the surface and through the soil is controlled to a large extent by relief. Water flowing over the soil commonly carries solid particles and causes erosion or deposition, depending on the kind of relief. The more sloping soils are drier than others because more water runs off and less water enters the soil. Lower lying soils receive the water that flows off and through the higher soils and are commonly wetter.

Time

The length of time that soil-forming factors act on the parent material determines to a large degree the characteristics of the soil. Determinations of when soil formation began are not exact, but most soils in Calhoun and Early Counties are considered mature. A mature soil is in equilibrium with the environment. It has readily recognizable pedogenic horizons and a regular decrease in content of carbon with depth. Some areas of Norfolk and Tifton soils are on rather broad, stable landscapes where the soil-forming processes have been active for thousands of years. These mature soils have a thick solum and well expressed zones of eluviation and illuviation.

Herod soils receive sediment annually from floodwaters. These young soils are stratified and are not old enough to have a zone of illuviation. Young soils do not have pedogenic horizons and the content of carbon decreases irregularly with depth.

References

(1) American Association of State Highway [and Transportation] Officials. 1970. Standard specifications for highway materials and methods of sampling and testing. Ed. 10, 2 vol., illus.

(2) American Society for Testing and Materials. 1974. Method for classification of soils for engineering purposes. ASTM Stand. D 2487-69. *In* 1974 Annual Book of ASTM Standards, Part 19, 464 pp., illus.

(3) Bergeaux, P. J. 1976. Fertilizer recommendations for field crops. Univ. of Ga., Coll. of Agric., Circ. 639.

(4) Byers, H. G., Charles E. Kellogg, M. S. Anderson, and James Thorp. 1938. Formation of soil. *In* Soils and men. U.S. Dep. Agric. Yearb., pp 948-978.

(5) Georgia Department of Natural Resources. 1976. Geologic map of Georgia. Geol. and Water Resour. Div., Ga. Geol. Surv.

(6) United States Department of Agriculture. 1921. Soil survey of Early County, Georgia. Bur. of Soils, 43 pp., map.

(7) United States Department of Agriculture. 1928. Soil survey of Calhoun County, Georgia. Bur. of Soils, 38 pp., map.

(8) United States Department of Agriculture. 1951. Soil survey manual. U.S. Dep. Agric. Handb. 18, 503 pp., illus.

(9) United States Department of Agriculture. 1967. Soil survey laboratory data and descriptions for some soils of Georgia, North Carolina, and South Carolina. Soil Surv. Invest. Rep. No. 16.

(10) United States Department of Agriculture. 1971. Forest statistics for southwest Georgia. Forest Serv., Southeast Forest Exp. Stn. Resour. Bull. SE-19, 34 pp.

(11) United States Department of Agriculture. 1972. Forest statistics for Central Georgia. Forest Serv., Resour. Bull. SE-22, 34 pp.

(12) United States Department of Agriculture. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. Soil Conserv. Serv., U.S. Dep. Agric. Handb. 436, 754 pp., illus.

Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. Only the tillage essential to crop production and prevention of soil damage.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation

during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major

horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the

thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[From data recorded in the period 1951-79 at Blakely, Ga.]

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F		In	In	In		In
January----	59.8	37.8	48.8	79	15	158	4.93	2.46	7.08	8	0.1
February---	63.3	39.6	51.5	82	19	164	5.17	2.90	7.18	7	0.2
March------	70.6	46.0	58.3	86	27	278	5.49	2.79	7.84	8	0.0
April------	78.9	53.6	66.3	90	37	489	4.43	1.70	6.71	6	0.0
May--------	85.1	60.9	73.0	96	46	713	4.76	2.17	6.97	7	0.0
June-------	90.0	67.3	78.7	100	56	861	4.66	2.48	6.56	8	0.0
July-------	91.3	70.0	80.7	99	63	952	5.99	3.68	8.06	10	0.0
August-----	91.2	69.6	80.4	98	61	942	4.51	3.06	5.83	8	0.0
September--	87.6	66.1	76.9	97	52	807	4.33	1.53	6.63	7	0.0
October----	79.3	54.4	66.9	92	35	524	2.28	.44	3.72	4	0.0
November---	69.3	44.7	57.0	85	24	231	3.19	1.43	4.69	5	0.0
December---	62.2	39.3	50.8	80	19	126	4.47	2.48	6.23	7	0.0
Yearly:											
Average--	77.4	54.1	65.8	---	---	---	---	---	---	---	---
Extreme--	---	---	---	101	14	---	---	---	---	---	---
Total----	---	---	---	---	---	6,245	54.21	44.17	63.76	85	0.3

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[From data recorded in the period 1951-79 at Blakely, Ga.]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 5	March 18	March 29
2 years in 10 later than--	February 22	March 10	March 23
5 years in 10 later than--	February 1	February 23	March 11
First freezing temperature in fall:			
1 year in 10 earlier than--	November 21	November 11	October 31
2 years in 10 earlier than--	November 29	November 18	November 5
5 years in 10 earlier than--	December 15	December 2	November 15

TABLE 3.--GROWING SEASON

[From data recorded in the period 1951-79 at Blakely, Ga.]

Probability	Length of growing season if daily minimum temperature is higher than--		
	24° F	28° F	32° F
	Days	Days	Days
9 years in 10	285	245	222
8 years in 10	295	257	231
5 years in 10	315	281	248
2 years in 10	337	305	265
1 year in 10	350	317	274

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Calhoun County	Early County	Total-- Area	Total-- Extent
		Acres	Acres	Acres	Pct
AmB	Americus loamy sand, 0 to 5 percent slopes	360	1,910	2,270	0.4
AmC	Americus loamy sand, 5 to 8 percent slopes	15	1,045	1,060	0.2
AmD	Americus loamy sand, 8 to 12 percent slopes	70	880	950	0.2
BmA	Buncombe loamy sand, 0 to 2 percent slopes	10	1,800	1,810	0.3
CaB2	Carnegie sandy loam, 3 to 5 percent slopes, eroded	500	750	1,250	0.2
CaC2	Carnegie sandy loam, 5 to 8 percent slopes, eroded	820	2,410	3,230	0.6
CaD2	Carnegie sandy loam, 8 to 12 percent slopes, eroded	510	900	1,410	0.3
CnA	Clarendon loamy sand, 0 to 2 percent slopes	400	1,565	1,965	0.4
DuA	Duplin sandy loam, 0 to 2 percent slopes	400	1,440	1,840	0.4
EsD	Esto sandy loam, 8 to 15 percent slopes	400	2,825	3,225	0.6
FeA	Faceville sandy loam, 0 to 2 percent slopes	6,180	5,130	11,310	2.2
FeB	Faceville sandy loam, 2 to 5 percent slopes	11,910	14,345	26,255	5.0
FeC2	Faceville sandy loam, 5 to 8 percent slopes, eroded	2,125	3,300	5,425	1.0
FeD	Faceville sandy loam, 8 to 12 percent slopes	125	320	445	0.1
GoA	Goldsboro loamy sand, 0 to 2 percent slopes	9,100	15,700	24,800	4.8
Gr	Grady loam	15,960	33,730	49,690	9.6
GsA	Greenville sandy loam, 0 to 2 percent slopes	7,605	7,990	15,595	3.0
GsB	Greenville sandy loam, 2 to 5 percent slopes	15,400	13,490	28,890	5.5
GsC	Greenville sandy loam, 5 to 8 percent slopes	3,900	2,400	6,300	1.2
GsD	Greenville sandy loam, 8 to 12 percent slopes	500	350	850	0.2
GvC2	Greenville sandy clay loam, 5 to 8 percent slopes, eroded	208	420	628	0.1
HM	Herod-Muckalee association	18,095	10,230	28,325	5.5
HvA	Hornsville fine sandy loam, 0 to 2 percent slopes	1,500	2,500	4,000	0.8
KoA	Kolomoki fine sandy loam, 0 to 2 percent slopes	265	2,600	2,865	0.6
LmB	Lucy loamy sand, 0 to 5 percent slopes	3,000	4,185	7,185	1.4
LmC	Lucy loamy sand, 5 to 8 percent slopes	175	600	775	0.1
MaA	Marlboro sandy loam, 0 to 2 percent slopes	630	3,500	4,130	0.8
MaB	Marlboro sandy loam, 2 to 5 percent slopes	275	1,770	2,045	0.4
Me	Meggett loam	0	1,285	1,285	0.2
MM	Meggett-Muckalee association	1,645	9,730	11,395	2.2
NeB	Nankin-Esto sandy loams, 2 to 5 percent slopes	300	4,400	4,700	0.9
NeC2	Nankin-Esto sandy loams, 5 to 8 percent slopes, eroded	500	4,030	4,530	0.9
NoA	Norfolk loamy sand, 0 to 2 percent slopes	13,020	19,880	32,900	6.3
NoB	Norfolk loamy sand, 2 to 5 percent slopes	3,010	22,700	25,710	4.9
NoC	Norfolk loamy sand, 5 to 8 percent slopes	0	400	400	0.1
Oc	Ocilla loamy sand	1,550	4,980	6,530	1.3
OeA	Orangeburg loamy sand, 0 to 2 percent slopes	12,340	4,050	16,390	3.2
OeB	Orangeburg loamy sand, 2 to 5 percent slopes	11,895	16,750	28,645	5.6
OeC	Orangeburg loamy sand, 5 to 8 percent slopes	2,745	2,300	5,045	1.0
OeD	Orangeburg loamy sand, 8 to 12 percent slopes	1,145	900	2,045	0.4
OTE	Orangeburg, Esto and Troup soils, 12 to 25 percent slopes	0	2,000	2,000	0.4
Pe	Pelham loamy sand	2,520	5,000	7,520	1.4
Ra	Rains loamy sand	5,000	6,425	11,425	2.2
ReA	Red Bay sandy loam, 0 to 2 percent slopes	4,880	2,500	7,380	1.4
ReB	Red Bay sandy loam, 2 to 5 percent slopes	3,440	4,900	8,340	1.6
ReC	Red Bay sandy loam, 5 to 8 percent slopes	660	1,300	1,960	0.4
ReD	Red Bay sandy loam, 8 to 12 percent slopes	300	800	1,100	0.2
Ro	Riverview loam	0	1,000	1,000	0.2
TfA	Tifton loamy sand, 0 to 2 percent slopes	5,470	21,625	27,095	5.2
TfB	Tifton loamy sand, 2 to 5 percent slopes	8,860	28,230	37,090	7.1
TgC2	Tifton sandy loam, 5 to 8 percent slopes, eroded	330	1,200	1,530	0.3
ThD	Troup sand, 8 to 12 percent slopes	70	3,600	3,670	0.7
TLB	Troup-Lakeland association, 1 to 5 percent slopes	475	9,530	10,005	1.9
TLC	Troup-Lakeland association, 5 to 8 percent slopes	70	1,670	1,740	0.3
UdD	Udorthents, 2 to 20 percent slopes	0	150	150	*
UkB	Urban land-Kolomoki complex, 0 to 5 percent slopes	0	600	600	0.1
Up	Udorthents-Pits complex	500	250	750	0.1
WaB	Wagram loamy sand, 0 to 5 percent slopes	3,575	14,590	18,165	3.4
WaC	Wagram loamy sand, 5 to 8 percent slopes	30	500	530	0.1
	Total	184,768	335,360	520,128	100.0

* Less than 0.1 percent.

TABLE 5.--IMPORTANT FARMLAND

[Acreage is according to date fieldwork was completed. Soils not listed do not qualify as prime farmland or additional land of statewide importance]

Map symbol and soil name	Prime farmland	Additional farmland of statewide importance
	Acres	Acres
AmB---- Americus	---	2,270
AmC---- Americus	---	1,060
BmA---- Buncombe	---	1,810
CaB2---- Carnegie	---	1,250
CaC2---- Carnegie	---	3,230
CnA---- Clarendon	1,965	---
DuA---- Duplin	1,840	---
FeA---- Faceville	11,310	---
FeB---- Faceville	26,255	---
FeC2---- Faceville	5,425	---
FeD---- Faceville	---	445
GoA---- Goldsboro	24,800	---
GsA---- Greenville	15,595	---
GsB---- Greenville	28,890	---
GsC---- Greenville	6,300	---
GsD---- Greenville	---	850
GvC2---- Greenville	---	628
HvA---- Hornsville	4,000	---
KoA---- Kolomoki	2,865	---
LmB---- Lucy	---	7,185
LmC---- Lucy	---	775

TABLE 5.--IMPORTANT FARMLAND-Continued

Map symbol and soil name	Prime farmland	Additional farmland of statewide importance
	Acres	Acres
MaA---- Marlboro	4,130	---
MaB---- Marlboro	2,045	---
NeB---- Nankin-Esto	---	4,700
NeC2---- Nankin-Esto	---	4,530
NoA---- Norfolk	32,900	---
NoB---- Norfolk	25,710	---
NoC---- Norfolk	400	---
Oc---- Ocilla	---	6,530
OeA---- Orangeburg	16,390	---
OeB---- Orangeburg	28,645	---
OeC---- Orangeburg	5,045	
OeD---- Orangeburg	---	2,045
ReA---- Red Bay	7,380	---
ReB---- Red Bay	8,340	---
ReC---- Red Bay	1,960	---
ReD---- Red Bay	---	1,100
Ro---- Riverview	1,000	---
TfA---- Tifton	27,095	
TfB---- Tifton	37,090	---
TgC2---- Tifton	1,530	---
TLB---- Troup-Lakeland	---	10,005
WaB---- Wagram	---	18,165
WaC---- Wagram	---	530
Total----	328,905	67,108

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields in the N columns are for nonirrigated soils; those in the I columns are for irrigated soils. Yields are those that can be expected under a high level of management. Absence of an entry indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Corn		Soybeans		Cotton lint		Peanuts		Improved bermudagrass		Bahiagrass	
	N	I	N	I	N	I	N	I	N	I	N	I
	Bu	Bu	Bu	Bu	Lb	Lb	Lb	Lb	AUM*	AUM*	AUM*	AUM*
AmB---- Americus	60	160	25	45	400	500	2,200	3,850	7.0	9.5	7.0	---
AmC---- Americus	55	130	20	35	350	440	2,000	3,500	7.0	9.5	7.0	---
AmD---- Americus	---	---	---	---	---	---	---	---	6.0	8.0	6.0	---
BmA---- Buncombe	60	160	25	40	500	625	2,200	3,850	7.0	9.5	7.0	---
CaB2---- Carnegie	65	105	30	35	500	600	3,200	4,300	6.5	8.5	7.0	---
CaC2---- Carnegie	55	90	25	30	400	500	2,600	3,500	6.0	8.0	6.5	---
CaD2---- Carnegie	---	---	---	---	---	---	---	---	5.5	7.5	5.5	---
CnA---- Clarendon	110	175	40	50	---	---	---	---	10.5	13.0	10.0	---
DuA---- Duplin	110	175	50	60	750	---	---	---	10.5	13.0	10.0	---
EsD---- Esto	---	---	---	---	---	---	---	---	5.5	7.5	5.5	---
FeA---- Faceville	115	185	45	50	875	1,050	4,000	4,750	10.0	12.5	7.0	---
FeB---- Faceville	115	185	45	50	875	1,050	4,000	4,750	10.0	12.5	7.0	---
FeC2---- Faceville	85	135	25	40	550	700	2,800	3,800	8.5	12.0	5.5	---
FeD---- Faceville	80	130	25	30	500	600	2,600	3,500	7.0	9.5	5.0	---
GoA---- Goldsboro	125	200	45	55	---	---	---	---	11.0	13.5	9.0	---
Gr---- Grady	---	---	---	---	---	---	---	---	---	---	---	---
GsA---- Greenville	115	185	45	50	875	1,050	4,000	4,750	10.0	12.5	7.0	---
GsB---- Greenville	115	185	45	50	875	1,050	4,000	4,750	10.0	12.5	7.0	---
GsC---- Greenville	85	135	25	40	650	800	3,000	4,000	9.5	12.0	6.0	---
GsD---- Greenville	80	130	25	30	500	600	2,600	3,500	7.0	9.5	5.0	---
GvC2---- Greenville	60	100	20	25	500	600	2,000	2,700	9.0	12.0	6.0	---

See footnote at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn		Soybeans		Cotton lint		Peanuts		Improved bermudagrass		Bahiagrass	
	N	I	N	I	N	I	N	I	N	I	N	I
	Bu	Bu	Bu	Bu	Lb	Lb	Lb	Lb	AUM*	AUM*	AUM*	AUM*
HM:**												
Herod	---	---	---	---	---	---	---	---	---	---	10.0	---
Muckalee	---	---	---	---	---	---	---	---	---	---	7.0	---
HvA Hornsville	100	160	40	50	---	---	---	---	10.5	13.0	10.0	---
KoA Kolomoki	115	185	45	50	875	1,050	4,000	4,750	10.0	12.5	7.0	---
LmB Lucy	80	180	33	50	650	800	3,000	4,500	8.0	10.5	8.5	---
LmC Lucy	70	160	25	45	600	750	2,500	3,750	7.5	10.0	8.5	---
MaA Marlboro	115	185	45	50	875	1,050	4,000	4,750	10	12.5	7.0	---
MaB Marlboro	115	185	45	50	875	1,050	4,000	4,750	10	12.5	7.0	---
Me Meggett	---	---	---	---	---	---	---	---	---	---	---	---
MM:**												
Meggett	---	---	---	---	---	---	---	---	---	---	---	---
Muckalee	---	---	---	---	---	---	---	---	---	---	7.0	---
NeB Nankin-Esto	64	100	32	38	555	650	650	1,980	7.6	9.5	6.5	---
NeC2 Nankin-Esto	---	---	---	---	---	---	---	---	5.8	7.0	5.8	---
NoA Norfolk	120	190	45	55	900	1,100	4,000	5,400	10.5	14.0	8.5	---
NoB Norfolk	120	190	45	55	900	1,100	4,000	5,400	10.5	14.0	8.5	---
NoC Norfolk	95	150	35	40	800	950	3,200	4,300	10.0	12.5	8.0	---
Oc Ocilla	75	120	35	40	---	---	---	---	8.5	10.5	7.5	---
OeA Orangeburg	120	190	45	55	900	1,100	4,000	5,400	10.5	14.0	8.5	---
OeB Orangeburg	120	190	45	55	900	1,100	4,000	5,400	10.5	14.0	8.5	---
OeC Orangeburg	95	150	35	40	800	950	3,200	4,300	10.0	12.5	8.0	---
OeD Orangeburg	85	135	30	35	650	800	2,800	3,800	9.0	12.0	7.0	---
OTE Orangeburg, Esto and Troup	---	---	---	---	---	---	---	---	6.5	8.5	5.5	---
Pe Pelham	---	---	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn		Soybeans		Cotton lint		Peanuts		Improved bermudagrass		Bahiagrass	
	N	I	N	I	N	I	N	I	N	I	N	I
	Bu	Bu	Bu	Bu	Lb	Lb	Lb	Lb	AUM*	AUM*	AUM*	AUM*
Ra---------- Rains	---	---	---	---	---	---	---	---	---	---	6.0	---
ReA---------- Red Bay	120	190	45	55	900	1,100	4,000	5,400	10.5	14.0	8.5	---
ReB---------- Red Bay	120	190	45	55	900	1,100	4,000	5,400	10.5	14.0	8.5	---
ReC---------- Red Bay	95	150	35	40	800	950	3,200	4,300	10.0	12.5	8.0	---
ReD---------- Red Bay	85	135	30	35	650	800	2,800	3,800	9.0	12.0	7.0	---
Ro---------- Riverview	110	175	40	50	600	700	3,500	4,700	10.0	12.5	10.0	---
TfA---------- Tifton	115	185	46	55	950	1,150	3,800	5,100	10.5	14.0	8.5	---
TfB---------- Tifton	115	185	46	55	950	1,150	3,800	5,100	10.5	14.0	8.5	---
TgC2---------- Tifton	90	145	38	45	750	900	3,600	4,850	10.0	12.5	8.0	---
ThD---------- Troup	---	---	---	---	---	---	---	---	6.5	8.5	5.0	---
TLB:**												
Troup----------	60	160	25	45	500	600	2,200	3,850	7.0	9.5	7.0	---
Lakeland----------	55	160	20	40	450	550	2,000	3,500	7.0	9.5	7.0	---
TLC:**												
Troup----------	55	160	22	40	450	550	1,800	2,500	7.0	9.5	7.0	---
Lakeland----------	50	150	---	35	400	500	1,600	2,150	6.5	8.5	6.5	---
UdD.**												
Udorthents----------	---	---	---	---	---	---	---	---	---	---	---	---
UkB**---------- Urban land-Kolomoki	---	---	---	---	---	---	---	---	---	---	---	---
Up**---------- Udorthents-Pits	---	---	---	---	---	---	---	---	---	---	---	---
WaB---------- Wagram	75	180	25	50	550	650	2,900	4,350	8.0	10.5	8.5	---
WaC---------- Wagram	70	160	20	45	500	600	2,500	3,750	7.5	10.0	8.5	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Dashes indicate no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I:				
Calhoun County	50,390	---	---	---
Early County	67,275	---	---	---
II:				
Calhoun County	72,765	54,790	11,400	6,575
Early County	143,165	102,185	22,205	18,775
III:				
Calhoun County	12,946	10,560	1,550	836
Early County	31,082	16,050	4,980	10,052
IV:				
Calhoun County	8,865	3,598	5,000	267
Early County	21,907	9,230	6,425	6,252
V:				
Calhoun County	37,315	---	37,315	---
Early County	53,338	---	53,338	---
VI:				
Calhoun County	1,987	910	905	172
Early County	16,493	4,625	6,637	5,231
VII:				
Calhoun County	---	---	---	---
Early County	1,100	700	---	400
VIII:				
Calhoun County	---	---	---	---
Early County	---	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
						Ft	
AmB, AmC, AmD---- Americus	3s	Slight	Moderate	Moderate	Slash pine----	84	Slash pine, longleaf pine.
					Loblolly pine----	84	
					Longleaf pine----	70	
BmA---- Buncombe	2s	Slight	Moderate	Moderate	Eastern cottonwood----	100	Eastern cottonwood, loblolly pine, American sycamore.
					American sycamore----	90	
					Sweetgum----	90	
					Loblolly pine----	90	
					Yellow-poplar----	100	
CaB2, CaC2, CaD2--- Carnegie	2o	Slight	Slight	Slight	Loblolly pine----	86	Loblolly pine, slash pine.
					Slash pine----	86	
					Longleaf pine----	72	
CnA---- Clarendon	2w	Slight	Moderate	Slight	Loblolly pine----	90	Loblolly pine, slash pine, American sycamore, yellow-poplar, sweetgum.
					Slash pine----	90	
					Sweetgum----	85	
DuA---- Duplin	2w	Slight	Moderate	Moderate	Loblolly pine----	90	Loblolly pine, slash pine, yellow-poplar, American sycamore, sweetgum.
					Slash pine----	90	
					Sweetgum----	---	
					Blackgum----	---	
					Southern red oak----	---	
					White oak----	---	
					Yellow-poplar----	100	
EsD---- Esto	3o	Slight	Slight	Slight	Loblolly pine----	80	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine----	65	
					Slash pine----	80	
FeA, FeB, FeC2, FeD---- Faceville	3o	Slight	Slight	Slight	Loblolly pine----	82	Loblolly pine, slash pine.
					Slash pine----	80	
					Longleaf pine----	65	
GoA---- Goldsboro	2w	Slight	Moderate	Slight	Loblolly pine----	90	Loblolly pine, slash pine, yellow-poplar, American sycamore, sweetgum.
					Slash pine----	93	
					Longleaf pine----	77	
					Sweetgum----	90	
					Southern red oak----	---	
					White oak----	---	
Gr---- Grady	4w	Slight	Severe	Severe	Baldcypress----	68	American sycamore, water tupelo.
					Blackgum----	65	
					Water oak----	65	
GsA, GsB, GsC, GsD- Greenville	3o	Slight	Slight	Slight	Loblolly pine----	85	Loblolly pine, longleaf pine, slash pine.
					Longleaf pine----	70	
					Slash pine----	85	
GvC2---- Greenville	3o	Slight	Slight	Moderate	Loblolly pine----	85	Loblolly pine, longleaf pine, slash pine.
					Longleaf pine----	70	
					Slash pine----	85	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
						Ft	
HM:*							
Herod	1w	Slight	Severe	Severe	Loblolly pine	100	Loblolly pine, slash pine, sweetgum, eastern cottonwood.
					Sweetgum	95	
					Water oak	90	
					Eastern cottonwood	100	
Muckalee	2w	Slight	Severe	Severe	Sweetgum	90	Sweetgum, loblolly pine, American sycamore, eastern cottonwood.
					Loblolly pine	90	
					Slash pine	90	
					Water oak	90	
					Green ash	85	
					Eastern cottonwood	100	
HvA---- Hornsville	2w	Slight	Moderate	Moderate	Loblolly pine	90	Loblolly pine, slash pine, sweetgum, yellow-poplar.
					Slash pine	90	
					Sweetgum	90	
KoA---- Kolomoki	2o	Slight	Slight	Slight	Loblolly pine	95	Loblolly pine, slash pine.
					Slash pine	90	
					Longleaf pine	75	
					Sweetgum	90	
					Southern red oak	---	
LmB, LmC---- Lucy	3s	Slight	Moderate	Moderate	Slash pine	85	Slash pine, longleaf pine, loblolly pine.
					Longleaf pine	74	
					Loblolly pine	85	
MaA, MaB---- Marlboro	3o	Slight	Slight	Slight	Loblolly pine	82	Slash pine, loblolly pine.
					Slash pine	80	
					Longleaf pine	62	
Me---- Meggett	1w	Slight	Severe	Severe	Slash pine	100	Slash pine, loblolly pine.
					Loblolly pine	100	
					Pond pine	75	
MM:*							
Meggett	1w	Slight	Severe	Severe	Slash pine	100	Slash pine, loblolly pine.
					Loblolly pine	100	
					Pond pine	75	
Muckalee	2w	Slight	Severe	Severe	Sweetgum	90	Sweetgum, loblolly pine, American sycamore, eastern cottonwood.
					Loblolly pine	90	
					Slash pine	90	
					Water oak	90	
					Green ash	85	
					Eastern cottonwood	100	
NeB,* NeC2:* Nankin	3o	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine, slash pine.
					Slash pine	80	
					Longleaf pine	70	
Esto	3o	Slight	Slight	Slight	Loblolly pine	80	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine	65	
					Slash pine	80	
NoA, NoB, NoC---- Norfolk	2o	Slight	Slight	Slight	Loblolly pine	86	Slash pine, loblolly pine.
					Longleaf pine	72	
					Slash pine	86	
Oc---- Ocilla	3w	Slight	Moderate	Moderate	Loblolly pine	85	Loblolly pine, slash pine.
					Slash pine	85	
					Longleaf pine	75	
OeA, OeB, OeC, OeD- Orangeburg	2o	Slight	Slight	Slight	Loblolly pine	80	Slash pine, loblolly pine.
					Slash pine	86	
					Longleaf pine	77	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
						Ft	
OTE:*							
Orangeburg	2o	Slight	Slight	Slight	Loblolly pine	80	Slash pine, loblolly pine.
					Slash pine	86	
					Longleaf pine	77	
Esto	3r	Moderate	Moderate	Slight	Loblolly pine	80	Loblolly pine, slash pine, longleaf pine.
					Longleaf pine	65	
					Slash pine	80	
Troup	3s	Slight	Moderate	Moderate	Loblolly pine	77	Loblolly pine, longleaf pine, slash pine.
					Longleaf pine	76	
					Slash pine	85	
Pe Pelham	2w	Slight	Severe	Severe	Slash pine	90	Slash pine, loblolly pine.
					Loblolly pine	90	
					Longleaf pine	80	
					Sweetgum	80	
					Blackgum	80	
					Water oak	80	
Ra Rains	2w	Slight	Severe	Severe	Loblolly pine	94	Loblolly pine, slash pine, sweetgum, American sycamore.
					Slash pine	91	
					Sweetgum	90	
ReA, ReB, ReC, ReD Red Bay	2o	Slight	Slight	Slight	Loblolly pine	90	Loblolly pine, slash pine, longleaf pine.
					Slash pine	90	
					Longleaf pine	77	
Ro Riverview	1w	Slight	Moderate	Moderate	Yellow-poplar	110	Loblolly pine, slash pine, eastern cottonwood, sweetgum, yellow-poplar, American sycamore.
					Loblolly pine	100	
					Sweetgum	100	
TfA, TfB, TgC2 Tifton	2o	Slight	Slight	Slight	Loblolly pine	86	Loblolly pine, slash pine.
					Slash pine	86	
					Longleaf pine	72	
ThD Troup	3s	Slight	Moderate	Moderate	Loblolly pine	77	Loblolly pine, longleaf pine, slash pine.
					Longleaf pine	76	
					Slash pine	85	
TLB,* TLC:*							
Troup	3s	Slight	Moderate	Moderate	Loblolly pine	77	Loblolly pine, longleaf pine, slash pine.
					Longleaf pine	76	
					Slash pine	85	
Lakeland	4s	Slight	Moderate	Moderate	Slash pine	75	Slash pine, loblolly pine.
					Loblolly pine	75	
					Longleaf pine	60	
WaB, WaC Wagram	3s	Slight	Moderate	Moderate	Loblolly pine	81	Loblolly pine, slash pine, longleaf pine.
					Slash pine	80	
					Longleaf pine	72	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AmB Americus	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
AmC Americus	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty.
AmD Americus	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
BmA Buncombe	Severe: flooding.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Severe: droughty.
CaB2 Carnegie	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: small stones, slope.	Slight	Slight.
CaC2 Carnegie	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight	Slight:
CaD2 Carnegie	Moderate: percs slowly, slope.	Moderate: percs slowly, slope.	Severe: slope.	Slight	Moderate: slope.
CnA Clarendon	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
DuA Duplin	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight	Slight.
EsD Esto	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
FeA Faceville	Slight	Slight	Slight	Slight	Slight.
FeB Faceville	Slight	Slight	Moderate: slope.	Slight	Slight.
FeC2 Faceville	Slight	Slight	Severe: slope.	Slight	Slight.
FeD Faceville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
GoA Goldsboro	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight	Slight.
Gr Grady	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
GsA Greenville	Slight	Slight	Slight	Slight	Slight.
GsB Greenville	Slight	Slight	Moderate: slope.	Slight	Slight.
GsC Greenville	Slight	Slight	Severe: slope.	Slight	Slight.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
GsD---------- Greenville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
GvC2---------- Greenville	Slight----------	Slight----------	Severe: slope.	Slight----------	Slight.
HM:*					
Herod----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Muckalee----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
HvA---------- Hornsville	Severe: flooding.	Moderate: percs slowly.	Moderate: percs slowly.	Slight----------	Slight.
KoA---------- Kolomoki	Severe: flooding.	Slight----------	Slight----------	Slight----------	Slight.
LmB---------- Lucy	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
LmC---------- Lucy	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty.
MaA---------- Marlboro	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
MaB---------- Marlboro	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
Me---------- Meggett	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
MM:*					
Meggett----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Muckalee----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
NeB:*					
Nankin----------	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
Esto----------	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
NeC2:*					
Nankin----------	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
Esto----------	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight----------	Slight.
NoA---------- Norfolk	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
NoB---------- Norfolk	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
NoC--Norfolk	Slight	Slight	Severe: slope.	Slight	Slight.
Oc--Ocilla	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
OeA--Orangeburg	Slight	Slight	Slight	Slight	Slight.
OeB--Orangeburg	Slight	Slight	Moderate: slope.	Slight	Slight.
OeC--Orangeburg	Slight	Slight	Severe: slope.	Slight	Slight.
OeD--Orangeburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
OTE:*					
Orangeburg	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Esto	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Troup	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty, slope.
Pe--Pelham	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ra--Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
ReA--Red Bay	Slight	Slight	Slight	Slight	Slight.
ReB--Red Bay	Slight	Slight	Moderate: slope.	Slight	Slight.
ReC--Red Bay	Slight	Slight	Severe: slope.	Slight	Slight.
ReD--Red Bay	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Ro--Riverview	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
TfA--Tifton	Slight	Slight	Moderate: small stones.	Slight	Slight.
TfB--Tifton	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
TgC2--Tifton	Slight	Slight	Severe: slope.	Slight	Slight.
ThD--Troup	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
TLB:*					
Troup	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
TLC:*					
Troup	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
UdD*. Udorthents					
UkB:* Urban land.					
Kolomoki	Slight	Slight	Moderate: slope.	Slight	Slight.
Up:* Udorthents.					
Pits.					
WaB Wagram	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
WaC Wagram	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.	Moderate: droughty.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AmB, AmC, AmD---- Americus	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
BmA---- Buncombe	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
CaB2---- Carnegie	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CaC2---- Carnegie	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CaD2---- Carnegie	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CnA---- Clarendon	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
DuA---- Duplin	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
EsD---- Esto	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FeA---- Faceville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
FeB---- Faceville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
FeC2, FeD---- Faceville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GoA---- Goldsboro	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Gr---- Grady	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
GsA, GsB---- Greenville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GsC, GsD, GvC2---- Greenville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
HM:*										
Herod----	Poor	Poor	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
Muckalee----	Poor	Poor	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
HvA---- Hornsville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
KoA---- Kolomoki	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LmB, LmC---- Lucy	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
MaA, MaB---- Marlboro	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Me---------- Meggett	Poor	Fair	Fair	Fair	Good	Good	Good	Fair	Good	Good.
MM:*										
Meggett----------	Poor	Fair	Fair	Fair	Good	Good	Good	Fair	Good	Good.
Muckalee----------	Poor	Poor	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
NeB:*										
Nankin----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Esto----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NeC2:*										
Nankin----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Esto----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NoA, NoB---------- Norfolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NoC---------- Norfolk	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Oc---------- Ocilla	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair.
OeA, OeB---------- Orangeburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
OeC, OeD---------- Orangeburg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
OTE:*										
Orangeburg--------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Esto----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Troup----------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Pe---------- Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
Ra---------- Rains	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Poor	Good.
ReA---------- Red Bay	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ReB---------- Red Bay	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ReC---------- Red Bay	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ReD---------- Red Bay	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Ro---------- Riverview	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
TfA---------- Tifton	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
TfB---------- Tifton	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
TgC2---------- Tifton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ThD---------- Troup	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
TLB,* TLC:*										
Troup----------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Lakeland----------	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
UdD*. Udorthents										
UkB:* Urban land.										
Kolomoki----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Up:* Udorthents.										
Pits.										
WaB---------- Wagram	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
WaC---------- Wagram	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AmB---- Americus	Severe: cutbanks cave.	Slight----	Slight----	Slight----	Slight----	Moderate: droughty.
AmC---- Americus	Severe: cutbanks cave.	Slight----	Slight----	Moderate: slope.	Slight----	Moderate: droughty.
AmD---- Americus	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
BmA---- Buncombe	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Severe: droughty.
CaB2, CaC2---- Carnegie	Slight----	Slight----	Slight----	Moderate: slope.	Slight----	Slight.
CaD2---- Carnegie	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
CnA---- Clarendon	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
DuA---- Duplin	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: low strength, shrink-swell.	Slight.
EsD---- Esto	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: low strength, slope, shrink-swell.	Moderate: slope.
FeA, FeB---- Faceville	Moderate: too clayey.	Slight----	Slight----	Slight----	Moderate: low strength.	Slight.
FeC2---- Faceville	Moderate: too clayey.	Slight----	Slight----	Moderate: slope.	Moderate: low strength.	Slight.
FeD---- Faceville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
GoA---- Goldsboro	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
Gr---- Grady	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding.	Severe: ponding.
GsA, GsB---- Greenville	Moderate: too clayey.	Slight----	Slight----	Slight----	Moderate: low strength.	Slight.
GsC---- Greenville	Moderate: too clayey.	Slight----	Slight----	Moderate: slope.	Moderate: low strength.	Slight.
GsD---- Greenville	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
GvC2---- Greenville	Moderate: too clayey.	Slight----	Slight----	Moderate: slope.	Moderate: low strength.	Slight.
HM:* Herod----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: wetness, flooding.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
HM:* Muckalee	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
HvA Hornsville	Moderate: too clayey, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: low strength.	Slight.
KoA Kolomoki	Moderate: too clayey.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: low strength.	Slight.
LmB Lucy	Moderate: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
LmC Lucy	Moderate: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
MaA, MaB Marlboro	Moderate: too clayey.	Slight	Slight	Slight	Moderate: low strength.	Slight.
Me Meggett	Severe: wetness, too clayey.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, wetness, flooding.	Severe: wetness, flooding.
MM:* Meggett	Severe: wetness, too clayey.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, wetness, flooding.	Severe: wetness, flooding.
Muckalee	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
NeB:* Nankin	Moderate: too clayey.	Slight	Slight	Slight	Slight	Slight.
Esto	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: low strength, shrink-swell.	Slight.
NeC2:* Nankin	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Slight	Slight.
Esto	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, shrink-swell.	Slight.
NoA, NoB Norfolk	Slight	Slight	Slight	Slight	Slight	Slight.
NoC Norfolk	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
Oc Ocilla	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
OeA, OeB Orangeburg	Slight	Slight	Slight	Slight	Slight	Slight.
OeC Orangeburg	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
OeD Orangeburg	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
OTE:*						
Orangeburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Esto	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Troup	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pe Pelham	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.
Ra Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
ReA, ReB Red Bay	Slight	Slight	Slight	Slight	Slight	Slight.
ReC Red Bay	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
ReD Red Bay	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Ro Riverview	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
TfA, TfB Tifton	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Slight.
TgC2 Tifton	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: slope.	Slignt	Slight.
ThD Troup	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope, too sandy.
TLB:*						
Troup	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty, too sandy.
Lakeland	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty, too sandy.
TLC:*						
Troup	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty, too sandy.
Lakeland	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty, too sandy.
UdD*. Udorthents						
UkB:* Urban land.						
Kolomoki	Moderate: too clayey.	Slight	Slight	Slight	Moderate: low strength.	Slight.
Up:* Udorthents.						
Pits.						

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
WaB---------- Wagram	Moderate: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
WaC---------- Wagram	Moderate: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AmB, AmC Americus	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
AmD Americus	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too sandy, slope.
BmA Buncombe	Severe: poor filter.	Severe: seepage, flooding.	Severe: seepage.	Severe: seepage.	Poor: seepage.
CaB2, CaC2 Carnegie	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
CaD2 Carnegie	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
CnA Clarendon	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
DuA Duplin	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey, hard to pack, wetness.
EsD Esto	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
FeA Faceville	Slight	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
FeB, FeC2 Faceville	Slight	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
FeD Faceville	Moderate: slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
GoA Goldsboro	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Gr Grady	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: too clayey, ponding.
GsA Greenville	Slight	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
GsB, GsC, GvC2 Greenville	Slight	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
GsD Greenville	Moderate: slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
HM:* Herod	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
HM:* Muckalee	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
HvA Hornsville	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, hard to pack, wetness.
KoA Kolomoki	Moderate: flooding.	Severe: seepage, flooding.	Severe: seepage.	Moderate: flooding.	Fair: too clayey.
LmB, LmC Lucy	Slight	Moderate: seepage.	Slight	Slight	Good.
MaA Marlboro	Slight	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
MaB Marlboro	Slight	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
Me Meggett	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
MM:* Meggett	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Muckalee	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
NeB,* NeC2:* Nankin	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
Esto	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
NoA, NoB, NoC Norfolk	Slight	Moderate: seepage.	Slight	Slight	Good.
Oc Ocilla	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
OeA Orangeburg	Slight	Moderate: seepage.	Slight	Slight	Good.
OeB, OeC Orangeburg	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
OeD Orangeburg	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
OtE:* Orangeburg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Esto	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
OtE:* Troup	Severe: slope.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: seepage, slope.	Poor: too sandy, slope.
Pe Pelham	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness.
Ra Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
ReA Red Bay	Slight	Moderate: seepage.	Slight	Slight	Good.
ReB, ReC Red Bay	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
ReD Red Bay	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
Ro Riverview	Severe: flooding, wetness.	Severe: seepage, flooding.	Severe: flooding. wetness.	Severe: flooding, seepage.	Fair: wetness.
TfA Tifton	Moderate: percs slowly, wetness.	Moderate: seepage.	Slight	Slight	Fair: small stones.
TfB, TgC2 Tifton	Moderate: percs slowly, wetness.	Moderate: slope, seepage.	Slight	Slight	Fair: small stones.
ThD Troup	Moderate: slope.	Severe: seepage, slope.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
TLB,* TLC:* Troup	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
Lakeland	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
UdD*. Udorthents					
UkB:* Urban land.					
Up:* Udorthents.					
Pits.					
Kolomoki	Slight	Severe: seepage.	Severe: seepage.	Slight	Fair: too clayey.
WaB, WaC Wagram	Slight	Moderate: seepage.	Slight	Slight	Good.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AmB, AmC---------- Americus	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
AmD---------- Americus	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, slope.
BmA---------- Buncombe	Good----------	Probable----------	Improbable: too sandy.	Fair: too sandy.
CaB2, CaC2, CaD2------ Carnegie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CnA---------- Clarendon	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
DuA---------- Duplin	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
EsD---------- Esto	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
FeA, FeB, FeC2, FeD--- Faceville	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
GoA---------- Goldsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Gr---------- Grady	Poor: low strength, ponding.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
GsA, GsB, GsC, GsD, GvC2---------- Greenville	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
HM*:				
Herod----------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Muckalee----------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
HvA---------- Hornsville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
KoA---------- Kolomoki	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
LmB, LmC---------- Lucy	Good----------	Improbable: excess fines, thin layer.	Improbable: excess fines.	Fair: too sandy.
MaA, MaB---------- Marlboro	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Me---------- Meggett	Poor: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
MM:*				
Meggett	Poor: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Muckalee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
NeB,* NeC2:*				
Nankin	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Esto	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
NoA, NoB, NoC Norfolk	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Oc Ocilla	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
OeA, OeB, OeC Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
OeD Orangeburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, slope.
OtE:*				
Orangeburg	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Esto	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Troup	Fair: slope.	Probable	Improbable: too sandy.	Poor: too sandy, slope.
Pe Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Ra Rains	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
ReA, ReB, ReC, ReD Red Bay	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Ro Riverview	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
TfA, TfB, TgC2 Tifton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
ThD Troup	Good	Probable	Improbable: too sandy.	Poor: too sandy.
TLB,* TLC:*				
Troup	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Lakeland	Good	Probable	Improbable: too sandy.	Poor: too sandy.
UdD*. Udorthents				

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
UkB:* Urban land.				
Kolomoki	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Up:* Udorthents.				
Pits.				
WaB, WaC Wagram	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AmB---- Americus	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty----	Too sandy----	Droughty.
AmC---- Americus	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, slope.	Too sandy----	Droughty.
AmD---- Americus	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, slope.	Slope, too sandy.	Slope, droughty.
BmA---- Buncombe	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty----	Too sandy----	Droughty.
CaB2, CaC2---- Carnegie	Slight----	Slight----	Deep to water	Slope----	Favorable----	Favorable.
CaD2---- Carnegie	Slight----	Slight----	Deep to water	Slope----	Slope----	Slope.
CnA---- Clarendon	Moderate: seepage.	Moderate: wetness.	Favorable----	Wetness.	Wetness----	Favorable.
DuA---- Duplin	Slight----	Moderate: piping, hard to pack, wetness.	Favorable----	Wetness----	Wetness----	Favorable.
EsD---- Esto	Slight----	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
FeA---- Faceville	Moderate: seepage.	Slight----	Deep to water	Favorable----	Favorable----	Favorable.
FeB, FeC2---- Faceville	Moderate: seepage.	Slight----	Deep to water	Slope----	Favorable----	Favorable.
FeD---- Faceville	Moderate: seepage.	Slight----	Deep to water	Slope----	Slope----	Slope.
GoA---- Goldsboro	Moderate: seepage.	Moderate: wetness.	Favorable----	Wetness----	Wetness----	Favorable.
Gr---- Grady	Slight----	Severe: ponding.	Ponding, percs slowly.	Ponding, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
GsA---- Greenville	Moderate: seepage.	Slight----	Deep to water	Favorable----	Favorable----	Favorable.
GsB, GsC---- Greenville	Moderate: seepage.	Slight----	Deep to water	Slope----	Favorable----	Favorable.
GsD---- Greenville	Moderate: seepage.	Slight----	Deep to water	Slope----	Slope----	Slope.
GvC2---- Greenville	Moderate: seepage.	Slight----	Deep to water	Slope----	Favorable----	Favorable.
HM:* Herod----	Moderate: seepage.	Severe: wetness.	Flooding----	Wetness, flooding.	Wetness----	Wetness.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
HM:*						
Muckalee	Moderate: seepage.	Severe: piping, wetness.	Flooding, cutbanks cave.	Wetness, droughty, flooding.	Wetness, too sandy.	Wetness, droughty.
HvA Hornsville	Moderate: seepage.	Moderate: hard to pack, wetness.	Favorable	Wetness	Wetness	Favorable.
KoA Kolomoki	Moderate: seepage.	Slight	Deep to water	Favorable	Favorable	Favorable.
LmB Lucy	Moderate: seepage.	Slight	Deep to water	Droughty	Too sandy	Droughty.
LmC Lucy	Moderate: seepage.	Slight	Deep to water	Droughty, slope.	Too sandy	Droughty.
MaA Marlboro	Moderate: seepage.	Slight	Deep to water	Favorable	Favorable	Favorable.
MaB Marlboro	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.
Me Meggett	Moderate: seepage.	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
MM:*						
Meggett	Moderate: seepage.	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Muckalee	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, droughty, flooding.	Wetness, too sandy.	Wetness, droughty.
NeB,* NeC2:*						
Nankin	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.
Esto	Slight	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly	Percs slowly.
NoA Norfolk	Moderate: seepage.	Slight	Deep to water	Favorable	Favorable	Favorable.
NoB, NoC Norfolk	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.
Oc Ocilla	Severe: seepage.	Severe: piping, wetness.	Favorable	Wetness, droughty.	Wetness	Droughty.
OeA Orangeburg	Moderate: seepage.	Slight	Deep to water	Favorable	Favorable	Favorable.
OeB, OeC Orangeburg	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.
OeD Orangeburg	Moderate: seepage.	Slight	Deep to water	Slope	Slope	Slope.
OtE:*						
Orangeburg	Moderate: seepage.	Slight	Deep to water	Slope	Slope	Slope.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
OtE:*						
Esto	Slight	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, slope.	Slope, too sandy.	Slope, droughty.
Pe Pelham	Severe: seepage.	Severe: piping, wetness.	Flooding	Wetness: droughty, flooding.	Wetness	Wetness, droughty.
Ra Rains	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness.	Wetness.	Wetness.
ReA Red Bay	Moderate: seepage.	Slight	Deep to water	Favorable	Favorable	Favorable.
ReB, ReC Red Bay	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.
ReD Red Bay	Moderate: seepage.	Slight	Deep to water	Slope	Slope	Slope.
Rc Riverview	Severe: seepage.	Moderate: piping.	Deep to water	Flooding	Favorable	Favorable.
TfA Tifton	Moderate: seepage.	Slight	Deep to water	Favorable	Favorable	Favorable.
TfB, TgC2 Tifton	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.
ThD Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, slope.	Slope, too sandy.	Slope, droughty.
TLB,* TLC:*						
Troup	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, slope.	Too sandy	Droughty.
Lakeland	Severe: seepage.	Severe: seepage.	Deep to water	Droughty	Too sandy	Droughty.
UdD*. Udorthents						
UkB:* Urban land.						
Kolomoki	Moderate: seepage.	Slight	Deep to water	Favorable	Favorable	Favorable.
Up:* Udorthents.						
Pits.						
WaB Wagram	Moderate: seepage.	Slight	Deep to water	Droughty	Favorable	Droughty.
WaC Wagram	Moderate: seepage.	Slight	Deep to water	Droughty, slope.	Favorable	Droughty.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AmB, AmC, AmD---- Americus	0-8	Loamy sand-------	SM, SP-SM	A-2	0	100	95-100	80-85	10-20	---	NP
	8-51	Loamy sand, loamy fine sand.	SM	A-2	0	100	95-100	85-90	13-20	---	NP
	51-72	Sandy loam, loamy sand, fine sandy loam.	SM, SM-SC	A-2	0	95-100	95-100	75-90	15-35	<28	NP-7
BmA---------- Buncombe	0-8	Loamy sand-------	SM, SP-SM	A-2, A-3	0	98-100	98-100	90-97	7-32	---	NP
	8-65	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	98-100	98-100	98-100	7-32	---	NP
CaB2, CaC2, CaD2- Carnegie	0-6	Sandy loam-------	SM, SM-SC	A-2	0	95-100	90-95	51-75	13-30	<25	NP-5
	6-20	Sandy clay, clay	CL	A-6, A-7	0	95-100	90-99	90-95	65-70	36-49	13-25
	20-65	Sandy clay, clay	CL	A-6, A-7	0	92-100	90-98	89-98	63-76	36-49	13-25
CnA---------- Clarendon	0-7	Loamy sand-------	SM, SP-SM	A-2	0	98-100	92-100	65-90	10-30	<20	NP-3
	7-34	Sandy clay loam	SC, CL, SM-SC, CL-ML	A-4, A-6	0	98-100	92-100	75-95	36-55	20-40	5-15
	34-65	Sandy clay loam, sandy loam, sandy clay.	SC, CL, SM-SC, CL-ML	A-2, A-4, A-6	0	99-100	96-100	80-95	25-55	<40	NP-15
DuA---------- Duplin	0-8	Sandy loam-------	SM, SM-SC	A-2, A-4	0	100	100	67-98	20-49	<26	NP-7
	8-65	Sandy clay, clay loam, clay.	CL, CH, SC	A-6, A-7	0	100	98-100	80-100	45-75	24-54	13-35
EsD---------- Esto	0-6	Sandy loam-------	SM, SM-SC, ML, CL-ML	A-4, A-2	0	95-100	95-100	70-96	25-55	<25	NP-6
	6-10	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	95-100	85-100	45-90	35-50	12-25
	10-65	Clay loam, clay, sandy clay.	CL, CH, ML	A-6, A-7	0	95-100	95-100	85-100	51-98	40-80	15-52
FeA, FeB---------- Faceville	0-7	Sandy loam-------	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-7
	7-18	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	18-70	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
FeC2, FeD---------- Faceville	0-5	Sandy loam-------	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-7
	5-10	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	10-65	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
GoA---------- Goldsboro	0-13	Loamy sand-------	SM, SM-SC, SC	A-2, A-4, A-6	0	90-100	75-100	50-95	15-45	<25	NP-14
	13-65	Sandy clay loam, sandy loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-95	25-55	16-37	4-18
Gr---------- Grady	0-4	Loam----------	SM, ML, CL-ML, SM-SC	A-4, A-6	0	100	99-100	85-100	40-75	<30	NP-15
	4-9	Clay loam, sandy clay loam, loam.	CL	A-6	0	100	100	90-100	51-80	25-40	11-20
	9-68	Clay, sandy clay	CL, ML, CH	A-6, A-7	0	100	100	90-100	55-90	30-51	12-25
GsA, GsB, GsC, GsD---------- Greenville	0-7	Sandy loam-------	SM, SC, SM-SC, CL-ML	A-2, A-4	0	95-100	90-100	65-85	30-55	<25	NP-10
	7-65	Sandy clay loam, sandy clay, clay.	CL, SC, ML	A-6, A-7, A-4	0	98-100	95-100	80-95	40-80	28-50	7-25
GvC2---------- Greenville	0-4	Sandy clay loam	CL, SC, CL-ML, SM-SC	A-4, A-6	0	95-100	95-100	75-95	45-75	20-35	6-15
	4-65	Sandy clay loam, sandy clay, clay.	CL, SC, ML	A-6, A-7, A-4	0	98-100	95-100	80-95	40-80	28-50	7-25

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
HM:*											
Herod	0-4	Loam	SM, SC, CL, ML	A-2, A-4	0	100	95-100	50-90	30-75	<30	NP-10
	4-45	Clay loam, sandy clay loam, loam.	CL	A-6	0	100	95-100	80-100	55-85	25-40	11-20
	45-62	Sandy loam, sandy clay loam.	CL, SM, ML, SC	A-4, A-6	0	100	95-100	70-90	36-60	<30	NP-15
Muckalee	0-5	Loam	ML, SC, SM, SM-SC	A-2, A-4	0	95-100	90-100	50-95	30-60	<30	NP-10
	5-62	Sandy loam, loamy sand.	SM	A-2, A-4	0	95-100	80-100	60-90	20-40	<20	NP-4
HvA	0-8	Fine sandy loam	SM	A-2-4, A-4	0	100	100	60-95	30-50	<30	NP-7
Hornsville	8-50	Sandy clay, clay loam, clay.	SC, CL, CH	A-6, A-7	0	100	100	70-98	45-70	38-56	15-25
	50-68	Sandy clay loam, sandy loam, fine sandy loam.	SM, SM-SC, SC	A-2-4, A-2-6, A-4, A-6	0	100	100	60-100	18-50	<30	NP-12
KoA	0-8	Fine sandy loam	SM, ML, CL-ML	A-2, A-4	0	95-100	95-100	80-98	30-55	<25	NP-6
Kolomoki	8-28	Sandy clay, clay	CL	A-6, A-7	0	95-100	95-100	95-100	60-90	36-50	14-22
	28-33	Sandy clay, sandy clay loam.	ML, SC, CL, SM	A-4, A-6	0	95-100	95-100	95-98	40-60	30-40	7-15
	33-42	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-4, A-2	0	95-100	95-100	90-99	30-49	<30	NP-10
	42-65	Loamy sand, sand	SM, SP-SM	A-2	0	95-100	95-100	60-98	10-35	---	NP
LmB, LmC	0-29	Loamy sand	SM, SP-SM	A-2	0	98-100	95-100	50-87	10-30	---	NP
Lucy	29-42	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	<30	NP-15
	42-80	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	3-20
MaA, MaB	0-8	Sandy loam	SM, SM-SC, ML, CL-ML	A-2, A-4	0	98-100	95-100	75-100	30-60	<35	NP-7
Marlboro	8-56	Sandy clay, clay loam, clay.	CL, ML, CL-ML	A-4, A-6, A-7	0	98-100	95-100	78-100	51-70	25-48	6-20
	56-65	Sandy clay loam, sandy clay, clay.	CL, ML, SM, SC	A-4, A-6, A-7	0	98-100	95-100	74-100	45-70	24-48	6-20
Me	0-4	Loam	ML, CL-ML	A-4	0	100	90-100	85-100	51-75	<35	NP-10
Meggett	4-18	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
	18-52	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
	52-62	Sandy clay, clay loam, sandy clay loam.	CL, SC, SM	A-4, A-6	0	90-100	65-100	50-100	40-60	<40	NP-25
MM*:											
Meggett	0-4	Loam	ML, CL-ML	A-4	0	100	90-100	85-100	51-75	<35	NP-10
	4-18	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
	18-52	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
	52-62	Sandy clay, clay loam, sandy clay loam.	CL, SC, SM	A-4, A-6	0	90-100	65-100	50-100	40-60	<40	NP-25
Muckalee	0-5	Loam	ML, SC, SM, SM-SC	A-2, A-4	0	95-100	90-100	50-95	30-60	<30	NP-10
	5-62	Sandy loam, loamy sand.	SM	A-2, A-4	0	95-100	80-100	60-90	20-40	<20	NP-4

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
NeB:*											
Nankin	0-8	Sandy loam	SM	A-2	0	95-100	90-100	70-90	13-30	---	NP
	8-10	Sandy clay loam, sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	75-90	25-45	20-35	4-15
	10-55	Sandy clay, clay, sandy clay loam.	SC, CL	A-4, A-6, A-7	0	98-100	95-100	75-95	40-70	25-45	7-20
	55-65	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
Esto	0-7	Sandy loam	SM, SM-SC, ML, CL-ML	A-4, A-2	0	95-100	95-100	70-96	25-55	<25	NP-6
	7-10	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	95-100	85-100	45-90	35-50	12-25
	10-65	Clay loam, clay, sandy clay.	CL, CH, ML	A-6, A-7	0	95-100	95-100	85-100	51-98	40-80	15-52
NeC2:*											
Nankin	0-6	Sandy loam	SM	A-2	0	95-100	90-100	70-90	13-30	---	NP
	6-10	Sandy clay loam, sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	75-90	25-45	20-35	4-15
	10-48	Sandy clay, clay, sandy clay loam.	SC, CL	A-4, A-6, A-7	0	98-100	95-100	75-95	40-70	25-45	7-20
	48-65	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
Esto	0-6	Sandy loam	SM, SM-SC, ML, CL-ML	A-4, A-2	0	95-100	95-100	70-96	25-55	<25	NP-6
	6-10	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	95-100	85-100	45-90	35-50	12-25
	10-65	Clay loam, clay, sandy clay.	CL, CH, ML	A-6, A-7	0	95-100	95-100	85-100	51-98	40-80	15-52
NoA, NoB, NoC----	0-9	Loamy sand	SM	A-2	0	95-100	92-100	50-91	13-30	<20	NP
Norfolk	9-38	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-38	4-15
	38-70	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7-6	0	100	98-100	65-98	36-72	20-45	4-22
Oc	0-34	Loamy sand	SM, SP-SM	A-2, A-3	0	100	95-100	75-100	8-35	---	NP
Ocilla	34-68	Sandy loam, sandy clay loam.	SM, CL, SC	A-2, A-4, A-6	0	100	95-100	80-100	30-55	<40	NP-18
OeA, OeB, OeC, OeD	0-8	Loamy sand	SM	A-2	0	98-100	95-100	60-87	14-28	---	NP
Orangeburg	8-15	Sandy loam	SM	A-2	0	98-100	95-100	70-96	25-35	<30	NP-4
	15-53	Sandy clay loam, sandy loam.	SC, CL, SM, SM-SC	A-6, A-4	0	98-100	95-100	71-96	38-58	22-40	3-19
	53-65	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	0	98-100	95-100	70-97	40-65	24-46	8-21
OTE:*											
Orangeburg	0-5	Loamy sand	SM	A-2	0	98-100	95-100	60-87	14-28	---	NP
	5-12	Sandy loam	SM	A-2	0	98-100	95-100	70-96	25-35	<30	NP-4
	12-52	Sandy clay loam, sandy loam.	SC, CL, SM, SM-SC	A-6, A-4	0	98-100	95-100	71-96	38-58	22-40	3-19
	52-65	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-6, A-4, A-7	0	98-100	95-100	70-97	40-65	24-46	8-21

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Esto	0-4	Sandy loam	SM, SM-SC, ML, CL-ML	A-4, A-2	0	95-100	95-100	70-96	25-55	<25	NP-6
	4-13	Clay loam, sandy clay, sandy clay loam.	CL, SC	A-6, A-7	0	95-100	95-100	85-100	45-90	35-50	12-25
	13-65	Clay loam, clay, sandy clay.	CL, CH, ML	A-6, A-7	0	95-100	95-100	85-100	51-98	40-80	15-52
Troup	0-60	Sand	SM, SP-SM	A-2	0	100	100	50-75	10-30	---	NP
	60-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2	0	95-100	95-100	60-90	24-55	19-34	4-12
Pe	0-25	Loamy sand	SM	A-2	0	100	95-100	75-90	15-30	---	NP
Pelham	25-40	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	30-50	15-30	2-12
	40-65	Sandy clay loam, sandy loam, sandy clay.	SC, SM-SC, ML, CL	A-2, A-4, A-6, A-7	0	100	95-100	65-90	30-65	20-45	5-20
Ra	0-15	Loamy sand	SM	A-2	0	100	95-100	55-98	15-35	<30	NP-4
Rains	15-32	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	32-68	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-45	4-28
ReA, ReB, ReC, ReD	0-8	Sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	60-85	15-45	<20	NP-4
Red Bay	8-14	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4	0	100	95-100	60-85	15-50	<35	NP-10
	14-65	Sandy clay loam	SM-SC, SC	A-2, A-4, A-6	0	100	95-100	70-90	24-50	18-40	4-16
Ro	0-8	Loam	CL, CL-ML, ML	A-4	0	100	100	90-100	60-80	15-30	5-10
Riverview	8-39	Sandy clay loam, silty clay loam, loam.	CL, ML, CL-ML	A-4, A-6	0	100	100	90-100	60-95	20-40	4-20
	39-65	Loamy fine sand, sandy loam, sand.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	100	50-95	15-45	<30	NP-7
TfA, TfB	0-7	Loamy sand	SM, SP-SM	A-2	0	70-96	62-94	53-85	11-27	---	NP
Tifton	7-11	Sandy loam, sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-7
	11-46	Sandy clay loam	SC, CL	A-2, A-6	0	70-98	65-94	60-89	22-53	22-40	10-22
	46-65	Sandy clay loam, sandy clay.	SC, CL	A-2, A-6, A-7, A-4	0	87-100	80-99	50-94	34-55	24-45	8-23
TgC2	0-5	Sandy loam	SM, SM-SC	A-2	0	70-95	60-89	55-89	15-30	<20	NP-6
Tifton	5-18	Sandy loam, sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-7
	18-42	Sandy clay loam	SC, CL	A-2, A-6	0	70-98	65-94	60-89	22-53	22-40	10-22
	42-65	Sandy clay loam, sandy clay.	SC, CL	A-2, A-6, A-7, A-4	0	87-100	80-99	50-94	34-55	24-45	8-23
ThD	0-62	Sand	SM, SP-SM	A-2	0	100	100	50-75	10-30	---	NP
Troup	62-78	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2	0	95-100	95-100	60-90	24-55	19-34	4-12
TLB:*											
Troup	0-62	Sand	SM, SP-SM	A-2	0	100	100	50-75	10-30	---	NP
	62-78	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2	0	95-100	95-100	60-90	24-55	19-34	4-12

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Lakeland--------	0-54	Sand----------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	54-82	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
TLC:*											
Troup----------	0-62	Sand----------	SM, SP-SM	A-2	0	100	100	50-75	10-30	---	NP
	62-78	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2	0	95-100	95-100	60-90	24-55	19-34	4-12
Lakeland--------	0-54	Sand----------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	54-82	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
UdD*.											
Udorthents											
UkB:*											
Urban land.											
Kolomoki--------	0-8	Fine sandy loam	SM, ML	A-2, A-4	0	95-100	95-100	80-98	30-55	0-25	NP-6
	8-28	Sandy clay, clay	CL	A-6, A-7	0	95-100	95-100	95-100	60-90	36-50	14-22
	28-33	Sandy clay, sandy clay loam.	ML, SC, CL, SM	A-4, A-6	0	95-100	95-100	95-98	40-60	30-40	7-15
	33-42	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-4, A-2	0	95-100	95-100	90-99	30-49	<30	NP-10
	42-65	Loamy sand, sand	SM, SP-SM	A-2	0	95-100	95-100	60-98	10-35	---	NP
UP:*											
Udorthents.											
Pits.											
WaB, WaC---------	0-24	Loamy sand--------	SM, SP-SM	A-2, A-3	0	100	98-100	50-85	8-35	---	NP
Wagram	24-68	Sandy clay loam, sandy loam.	SC	A-2, A-4, A-6, A-7	0	100	98-100	60-95	31-49	21-41	8-25

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm^3	In/hr	In/in	pH				Pct
AmB, AmC, AmD----	0-8	5-10	---	6.0-20	0.05-0.08	4.5-5.5	Very low-----	0.10	5	.5-1
Americus	8-51	8-14	---	2.0-6.0	0.09-0.12	4.5-5.5	Very low-----	0.17		
	51-72	10-20	---	2.0-6.0	0.09-0.12	4.5-5.5	Very low-----	0.20		
BmA----------	0-8	3-12	1.60-1.75	>6.0	0.06-0.10	6.1-6.5	Low----------	0.10	5	.5-1
Buncombe	8-65	3-12	1.60-1.75	>6.0	0.03-0.07	4.5-6.0	Low----------	0.10		
CaB2, CaC2, CaD2-	0-6	3-8	---	2.0-6.0	0.05-0.08	4.5-6.0	Low----------	0.28	3	1-2
Carnegie	6-20	36-43	---	0.2-0.6	0.10-0.14	4.5-5.5	Low----------	0.32		
	20-65	36-51	---	0.2-0.6	0.10-0.12	4.5-5.5	Low----------	0.28		
CnA----------	0-7	2-10	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.5	Low----------	0.15	5	.5-3
Clarendon	7-34	18-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.20		
	34-65	15-40	1.40-1.70	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	0.15		
DuA----------	0-8	4-18	1.45-1.65	2.0-6.0	0.10-0.15	5.1-7.3	Low----------	0.24	5	.5-2
Duplin	8-65	35-60	1.25-1.40	0.2-0.6	0.13-0.18	4.5-5.5	Moderate-----	0.28		
EsD----------	0-6	8-20	---	2.0-6.0	0.11-0.15	4.5-5.5	Low----------	0.28	3	<1
Esto	6-10	26-45	---	0.6-2.0	0.12-0.17	4.5-5.5	Moderate-----	0.32		
	10-65	35-60	---	0.06-0.2	0.12-0.18	4.5-5.5	Moderate-----	0.32		
FeA, FeB---------	0-7	5-20	---	6.0-20	0.06-0.09	4.5-5.5	Low----------	0.28	5	.5-2
Faceville	7-18	20-36	---	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.37		
	18-70	35-55	---	0.6-2.0	0.12-0.18	4.5-6.0	Low----------	0.37		
FeC2, FeD--------	0-5	5-20	---	6.0-20	0.06-0.09	4.5-5.5	Low----------	0.28	5	.5-2
Faceville	5-10	20-36	---	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.37		
	10-65	35-55	---	0.6-2.0	0.12-0.18	4.5-6.0	Low----------	0.37		
GoA----------	0-13	5-15	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low----------	0.20	5	.5-2
Goldsboro	13-65	18-30	1.30-1.50	0.6-2.0	0.11-0.15	4.5-5.5	Low----------	0.24		
Gr----------	0-4	15-30	---	0.6-2.0	0.10-0.18	3.6-5.5	Low----------	0.24	5	---
Grady	4-9	20-35	---	0.2-0.6	0.10-0.15	3.6-5.5	Low----------	0.10		
	9-68	45-65	---	0.06-0.2	0.12-0.16	3.6-5.5	Moderate-----	0.10		
GsA, GsB, GsC, GsD----------	0-7	5-20	1.30-1.65	0.6-6.0	0.07-0.14	4.5-6.0	Low----------	0.24	5	.5-1
Greenville	7-65	35-55	1.35-1.55	0.6-2.0	0.14-0.18	4.5-6.0	Low----------	0.17		
GvC2----------	0-4	15-30	1.30-1.65	0.6-2.0	0.12-0.18	4.5-6.0	Low----------	0.24	5	.5-1
Greenville	4-65	35-55	1.35-1.55	0.6-2.0	0.14-0.18	4.5-6.0	Low----------	0.17		
HM:*										
Herod----------	0-4	---	---	0.6-2.0	0.12-0.20	5.1-6.0	Low----------	0.24	5	---
	4-45	---	---	0.6-2.0	0.14-0.20	5.6-7.3	Low----------	----		
	45-62	---	---	0.6-2.0	0.12-0.16	5.6-7.3	Low----------	----		
Muckalee---------	0-5	10-25	---	0.6-2.0	0.09-0.15	5.1-7.3	Low----------	0.20	5	---
	5-62	5-20	---	0.6-2.0	0.08-0.12	5.6-8.4	Low----------	0.20		
HvA----------	0-8	6-15	1.44-1.68	6.0-20	0.08-0.12	4.5-6.0	Low----------	0.20	5	1-4
Hornsville	8-50	35-60	1.58-1.63	0.2-0.6	0.12-0.16	4.5-5.5	Low----------	0.28		
	50-68	12-35	1.62-1.69	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.32		
KoA----------	0-8	10-20	1.35-1.45	2.0-6.0	0.06-0.09	4.5-6.5	Low----------	0.24	4	.5-3
Kolomoki	8-28	35-55	1.60-1.70	0.6-2.0	0.13-0.16	4.5-6.0	Low----------	0.32		
	28-33	20-35	1.50-1.60	0.6-2.0	0.10-0.13	4.5-6.0	Low----------	0.28		
	33-42	10-35	1.50-1.60	0.6-2.0	0.06-0.11	4.5-6.0	Low----------	0.24		
	42-65	2-15	1.50-1.60	6.0-20	0.05-0.08	4.5-6.0	Low----------	0.20		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
LmB, LmC----------	0-29	1-12	---	6.0-20	0.06-0.10	5.1-5.5	Low----------	0.15	5	.5-1
Lucy	29-42	10-30	---	2.0-6.0	0.10-0.12	4.5-5.5	Low----------	0.24		
	42-80	20-35	---	0.6-2.0	0.12-0.14	4.5-5.5	Low----------	0.28		
MaA, MaB----------	0-8	5-20	1.30-1.60	2.0-6.0	0.09-0.14	5.1-6.5	Low----------	0.20	5	.5-2
Marlboro	8-56	35-65	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low----------	0.20		
	56-65	30-60	1.20-1.50	0.6-2.0	0.12-0.18	4.5-6.0	Low----------	0.20		
Me----------	0-4	15-25	---	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.28	5	2-8
Meggett	4-18	40-60	---	0.06-0.2	0.13-0.18	5.1-8.4	High----------	0.32		
	18-52	40-60	---	0.06-0.2	0.13-0.18	6.1-8.4	High----------	0.32		
	52-62	25-50	---	0.2-2.0	0.12-0.16	6.1-8.4	Moderate-----	0.28		
MM:*										
Meggett----------	0-4	15-25	---	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.28	5	2-8
	4-18	40-60	---	0.06-0.2	0.13-0.18	5.1-8.4	High----------	0.32		
	18-52	40-60	---	0.06-0.2	0.13-0.18	6.1-8.4	High----------	0.32		
	52-62	25-50	---	0.2-2.0	0.12-0.16	6.1-8.4	Moderate-----	0.28		
Muckalee---------	0-5	10-25	---	0.6-2.0	0.09-0.15	5.1-7.3	Low----------	0.20	5	---
	5-65	5-20	---	0.6-2.0	0.08-0.12	5.6-8.4	Low----------	0.20		
NeB:*										
Nankin----------	0-8	5-15	---	2.0-6.0	0.05-0.08	4.5-5.5	Low----------	0.28	3	.5-1
	8-10	15-35	---	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	10-55	35-50	---	0.2-0.6	0.11-0.16	4.5-5.5	Low----------	0.24		
	55-65	15-35	---	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
Esto----------	0-7	8-20	---	2.0-6.0	0.11-0.15	4.5-5.5	Low----------	0.28	3	<1
	7-10	26-45	---	0.6-2.0	0.12-0.17	4.5-5.5	Moderate-----	0.32		
	10-65	35-60	---	0.06-0.2	0.12-0.18	4.5-5.5	Moderate-----	0.32		
NeC2:*										
Nankin----------	0-6	5-15	---	2.0-6.0	0.05-0.08	4.5-5.5	Low----------	0.28	3	.5-1
	6-10	15-35	---	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	10-48	35-50	---	0.2-0.6	0.11-0.16	4.5-5.5	Low----------	0.24		
	48-65	15-35	---	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
Esto----------	0-6	8-20	---	2.0-6.0	0.11-0.15	4.5-5.5	Low----------	0.28	3	<1
	6-10	26-45	---	0.6-2.0	0.12-0.17	4.5-5.5	Moderate-----	0.32		
	10-65	35-60	---	0.06-0.2	0.12-0.18	4.5-5.5	Moderate-----	0.32		
NoA, NoB, NoC----	0-9	2-8	1.55-1.75	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.20	5	.5-2
Norfolk	9-38	18-35	1.35-1.45	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	38-70	20-40	1.30-1.40	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
Oc----------	0-34	4-10	---	2.0-20	0.05-0.08	4.5-5.5	Low----------	0.10	5	1-2
Ocilla	34-68	15-35	---	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24		
OeA, OeB, OeC, OeD	0-8	4-10	---	2.0-6.0	0.06-0.09	4.5-6.0	Low----------	0.10	5	.5-1
Orangeburg	8-15	7-18	---	2.0-6.0	0.09-0.12	4.5-6.0	Low----------	0.20		
	15-53	18-35	---	0.6-2.0	0.11-0.14	4.5-5.5	Low----------	0.24		
	53-65	20-45	---	0.6-2.0	0.11-0.14	4.5-5.5	Low----------	0.24		
OTE:*										
Orangeburg------	0-5	4-10	---	2.0-6.0	0.06-0.09	4.5-6.0	Low----------	0.10	5	.5-1
	5-12	7-18	---	2.0-6.0	0.09-0.12	4.5-6.0	Low----------	0.20		
	12-52	18-35	---	0.6-2.0	0.11-0.14	4.5-5.5	Low----------	0.24		
	52-65	20-45	---	0.6-2.0	0.11-0.14	4.5-5.5	Low----------	0.24		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
Esto	0-4	8-20	---	2.0-6.0	0.11-0.15	4.5-5.5	Low	0.28	3	<1
	4-13	26-45	---	0.6-2.0	0.12-0.17	4.5-5.5	Moderate	0.32		
	13-65	35-60	---	0.06-0.2	0.12-0.18	4.5-5.5	Moderate	0.32		
Troup	0-60	1-10	---	6.0-20	0.03-0.10	4.5-5.5	Very low	0.15	5	<1
	60-80	15-35	---	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.20		
Pc	0-25	5-10	1.50-1.70	6.0-20	0.05-0.08	4.5-5.5	Very low	0.10	5	1-2
Pelham	25-40	15-30	1.30-1.60	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.24		
	40-65	15-40	1.30-1.60	0.6-2.0	0.10-0.16	4.5-5.5	Low	0.24		
Ra	0-15	2-10	1.40-1.70	6.0-20	0.07-0.10	4.5-6.5	Low	0.15	5	1-6
Rains	15-32	18-35	1.30-1.50	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24		
	32-68	18-40	1.30-1.50	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.28		
ReA, ReB, ReC, ReD	0-8	7-20	---	2.0-6.0	0.07-0.14	4.5-6.0	Low	0.20	5	<2
Red Bay	8-14	10-25	---	0.6-6.0	0.10-0.14	4.5-5.5	Low	0.15		
	14-65	18-25	---	0.6-2.0	0.12-0.17	4.5-5.5	Low	0.17		
Ro	0-8	10-27	---	0.6-2.0	0.16-0.24	4.5-5.5	Low	0.32	5	.5-2
Riverview	8-39	18-35	---	0.6-2.0	0.15-0.22	4.5-5.5	Low	0.24		
	39-65	4-35	---	2.0-6.0	0.07-0.11	4.5-5.5	Low	0.17		
TfA, TfB	0-7	3-8	---	6.0-20	0.03-0.08	4.5-5.5	Low	0.10	4	<1
Tifton	7-11	13-22	---	6.0-20	0.08-0.12	4.5-5.5	Low	0.24		
	11-46	20-35	---	0.6-2.0	0.12-0.15	4.5-5.5	Low	0.24		
	46-65	25-40	---	0.2-0.6	0.10-0.13	4.5-5.5	Low	0.17		
TgC2	0-5	10-20	---	6.0-20	0.06-0.10	4.5-5.5	Low	0.17	4	1-2
Tifton	5-18	13-22	---	6.0-20	0.08-0.12	4.5-5.5	Low	0.24		
	18-42	20-35	---	0.6-2.0	0.12-0.15	4.5-5.5	Low	0.24		
	42-65	25-40	---	0.2-0.6	0.10-0.13	4.5-5.5	Low	0.17		
ThD	0-62	1-10	---	6.0-20	0.03-0.10	4.5-5.5	Very Low	0.15	5	<1
Troup	62-78	15-35	---	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.20		
TLB:*										
Troup	0-62	1-10	---	6.0-20	0.03-0.10	4.5-5.5	Very low	0.15	5	<1
	62-78	15-35	---	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.20		
Lakeland	0-54	2-8	1.35-1.65	6.0-20	0.05-0.09	4.5-6.0	Low	0.10	5	>1
	54-82	1-6	1.50-1.60	6.0-20	0.02-0.08	4.5-6.0	Low	0.10		
TLC:*										
Troup	0-62	1-10	---	6.0-20	0.03-0.10	4.5-5.5	Very low	0.15	5	<1
	62-78	15-35	---	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.20		
Lakeland	0-54	2-8	1.35-1.65	6.0-20	0.05-0.09	4.5-6.0	Low	0.10	5	>1
	54-82	1-6	1.50-1.60	6.0-20	0.02-0.08	4.5-6.0	Low	0.10		
UdD*.										
Udorthents										
UkB:*										
Urban land.										
Kolomoki	0-8	10-20	1.35-1.45	2.0-6.0	0.06-0.09	4.5-6.5	Low	0.24	4	.5-3
	8-28	35-55	1.60-1.70	0.6-2.0	0.13-0.16	4.5-6.0	Low	0.32		
	28-33	20-35	1.50-1.60	0.6-2.0	0.10-0.13	4.5-6.0	Low	0.28		
	33-42	10-35	1.50-1.60	0.6-2.0	0.06-0.11	4.5-6.0	Low	0.24		
	42-65	2-15	1.50-1.60	6.0-20	0.05-0.08	4.5-6.0	Low	0.20		
Up:*										
Udorthents.										
Pits.										
WaB, WaC	0-24	2-10	1.60-1.75	6.0-20	0.05-0.08	4.5-6.0	Low	0.15	5	.5-2
Wagram	24-68	10-35	1.35-1.60	0.6-2.0	0.12-0.16	4.5-6.0	Low	0.20		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

[See text for definition of terms. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
AmB, AmC, AmD----- Americus	A	None--------	---	---	>6.0	---	---	Low-------	High.
BmA---------- Buncombe	A	Rare--------	---	---	>6.0	---	---	Low-------	Moderate.
CaB2, CaC2, CaD2-- Carnegie	C	None--------	---	---	>6.0	---	---	Low-------	Moderate.
CnA---------- Clarendon	C	None--------	---	---	2.0-3.0	Apparent	Dec-Mar	Moderate	High.
DuA---------- Duplin	C	None--------	---	---	2.0-3.0	Apparent	Dec-Apr	High------	High.
EsD---------- Esto	B	None--------	---	---	>6.0	---	---	High------	High.
FeA, FeB, FeC2, FeD---------- Faceville	B	None--------	---	---	>6.0	---	---	Low-------	Moderate.
GoA---------- Goldsboro	B	None--------	---	---	2.0-3.0	Apparent	Dec-Apr	Moderate	High.
Gr---------- Grady	D	None--------	---	---	0-1.0	Apparent	Dec-Jun	High------	High.
GsA, GsB, GsC, GsD, GvC2-------- Greenville	B	None--------	---	---	>6.0	---	---	Moderate	High.
HM:*									
Herod----------	D	Frequent----	Brief-----	Nov-Apr	0.5-1.5	Apparent	Dec-Mar	High------	Moderate.
Muckalee---------	D	Frequent----	Brief-----	Nov-Apr	0.5-1.5	Apparent	Dec-Mar	High------	Moderate.
HvA---------- Hornsville	C	None--------	---	---	2.5-3.5	Apparent	Dec-Apr	High------	High.
KoA---------- Kolomoki	B	Rare--------	---	---	>6.0	---	---	Moderate	Moderate.
LmB, LmC---------- Lucy	A	None--------	---	---	>6.0	---	---	Low-------	High.
MaA, MaB---------- Marlboro	B	None--------	---	---	>6.0	---	---	High------	High.
Me---------- Meggett	D	Frequent----	Long------	Dec-Apr	0-1.0	Apparent	Nov-Apr	High------	Moderate.
MM:*									
Meggett----------	D	Frequent----	Long------	Dec-Apr	0-1.0	Apparent	Nov-Apr	High------	Moderate.
Muckalee---------	D	Frequent----	Brief-----	Nov-Apr	0.5-1.5	Apparent	Dec-Mar	High------	Moderate.
NeB,* NeC2:*									
Nankin----------	C	None--------	---	---	>6.0	---	---	High------	High.
Esto----------	B	None--------	---	---	>6.0	---	---	High------	High.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
NoA, NoB, NoC----- Norfolk	B	None--------	---	---	<6.0	Apparent	Jan-Mar	Moderate	High.
Oc---------- Ocilla	C	None--------	---	---	1.0-2.5	Apparent	Dec-Apr	High-----	Moderate.
OeA, OeB, OeC, OeD---------- Orangeburg	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
OTE:*									
Orangeburg-------	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
Esto----------	B	None--------	---	---	>6.0	---	---	High-----	High.
Troup----------	A	None--------	---	---	>6.0	---	---	Low------	Moderate.
Pe---------- Pelham	B/D	Occasional	Brief-----	Dec-Mar	0.5-1.5	Apparent	Jan-Apr	High-----	High.
Ra---------- Rains	B/D	None--------	---	---	0-1.0	Apparent	Nov-Apr	High-----	High.
ReA, ReB, ReC, ReD---------- Red Bay	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
Ro---------- Riverview	B	Occasional	Brief-----	Dec-Mar	3.0-5.0	Apparent	Dec-Mar	Low------	Moderate.
TfA, TfB, TgC2---- Tifton	B	None--------	---	---	3.5-6.0	Perched	Jan-Feb	Low------	Moderate.
ThD---------- Troup	A	None--------	---	---	>6.0	---	---	Low------	Moderate.
TLB,* TLC:*									
Troup----------	A	None--------	---	---	>6.0	---	---	Low------	Moderate.
Lakeland---------	A	None--------	---	---	>6.0	---	---	Low------	Moderate.
UdD*. Udorthents									
UkB:* Urban land.									
Kolomoki---------	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
Up:* Udorthents.									
Pits.									
WaB, WaC---------- Wagram	A	None--------	---	---	>6.0	---	---	Low------	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--ENGINEERING INDEX TEST DATA
[Dashes indicate data were not available. NP means nonplastic]

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution						Liquid limit	Plasticity index	Moisture density		Volume change		
			Percentage passing sieve--			Percentage smaller than--									
	AASHTO	Unified	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Maximum density	Optimum moisture	Total	Swell	Shrink
									Pct		Lb/ft^3	Pct	Pct	Pct	Pct
Esto sandy loam: (S79GA-099-1)															
Ap-------0 to 6	A-2-4(00)	SM	100	84	20	13	7	6	--	NP	116	11	5.5	4.2	1.3
B21t----12 to 18	A-6 (09)	CL	100	92	68	64	59	55	40	14	95	20	8.1	5.1	3.0
B23t----25 to 42	A-6 (09)	CL	100	93	75	72	61	56	38	12	95	23	13.5	5.4	8.1
B24t----42 to 68	A-7-6(17)	CL	100	97	79	73	62	56	45	22	100	29	29.2	14.7	14.5
Esto sandy loam: (S79GA-099-2)															
Ap-------0 to 6	A-2-4(00†	SM	100	79	29	24	17	15	--	NP	117	11	2.5	.9	1.6
B22t----17 to 27	A-7-6(10)	ML	100	88	68	65	60	58	42	15	94	25	22.3	15.2	7.1
B23t----27 to 46	A-7-6(11)	ML	100	87	65	62	59	58	46	18	95	25	13.8	4.9	8.9
B24t----46 to 65	A-7-5(14)	MH	100	90	72	67	61	58	50	18	93	28	12.6	3.8	8.8
Esto sandy loam: (S79GA-A099-3)															
B22t----15 to 22	A-7-6(09)	ML	100	94	61	57	51	49	45	17	97	21	11.1	6.1	5.0
B24t----29 to 52	A-7-6(13)	ML	100	96	68	65	60	58	48	20	92	24	18.1	9.3	8.8
B25t----52 to 70	A-7-5(26)	MH	100	99	84	80	75	72	58	28	84	19	19.5	12.0	7.5
Kolomoki fine sandy loam: (S79GA-009-4)															
Ap-------0 to 8	A-2-4(00)	SM	100	87	33	24	16	12	--	NP	112	9	10.2	8.9	1.3
B2t------8 to 28	A-6 (10)	CL	100	98	74	66	57	51	39	14	97	21	25.8	18.2	7.6
B3------28 to 33	A-4 (02)	ML	100	96	55	45	36	31	31	31	107	16	24.0	16.6	7.4
C1------33 to 42	A-4 (00)	SM	100	90	37	27	20	17	--	NP	112	9	15.2	13.2	2.0
C2------42 to 65	A-2-4(00)	SM	100	69	16	4	3	2	--	NP	99	16	0.5	0.5	0.0
Kolomoki sandy clay loam: (S79GA-009-5)															
Ap------0 to 8	A-4 (00)	CL-ML	100	97	53	41	29	24	23	5	109	13	16.5	12.6	3.9
B2t-----8 to 36	A-7-6(18)	CL	100	99	87	77	62	47	44	20	97	21	31.1	22.1	9.0
C1-----41 to 51	A-4 (00)	SM	100	94	37	21	14	12	--	NP	109	9	10.9	9.3	1.6
C2-----51 to 65	A-2-4(00)	SM	100	60	13	4	3	2	--	NP	96	13	0.1	0.1	0.0
Kolomoki fine sandy loam: (S79GA-099-6)															
Ap--------0 to 8	A-4 (00)	SM	100	98	47	30	21	18	--	NP	105	10	20.3	17.0	3.3
B21t-----8 to 35	A-6 (04)	CL	100	99	56	41	34	29	30	11	106	16	22.4	17.1	5.3
B3------40 to 52	A-4 (00)	SM	100	99	40	25	16	13	--	NP	105	10	24.0	22.2	1.8
C-------52 to 65	A-2-4(00)	SM	100	99	28	12	8	6	--	NP	101	11	24.8	23.2	1.6

TABLE 18.--ENGINEERING INDEX TEST DATA-Continued

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution						Liquid limit	Plasticity index	Moisture density		Volume change		
			Percentage passing sieve--			Percentage smaller than--									
	AASHTO	Unified	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Maximum density	Optimum moisture	Total	Swell	Shrink
									Pct		Lb/ft^3	Pct	Pct	Pct	Pct
Marlboro sandy loam: (S79GA-099-7)															
Ap-------0 to 9	A-4 (00)	SM	100	94	42	25	16	13	--	NP	116	9	8.5	6.8	1.7
B21t----11 to 32	A-6 (06)	CL	100	95	62	57	48	44	33	14	99	17	12.3	5.9	6.3
B24t----51 to 65	A-4 (06)	ML	100	96	62	56	45	40	--	NP	100	19	21.0	14.6	6.4
Marlboro sandy loam: (S79GA-099-8)															
Ap-------0 to 8	A-4 (00)	SM-SC	100	90	37	30	20	16	18	6	112	9	11.7	9.6	2.1
B21t----13 to 31	A-6 (07)	CL	100	93	63	59	50	46	36	13	98	20	18.9	9.3	9.6
B24t----50 to 65	A-6 (06)	CL	100	93	62	58	47	44	35	13	98	20	14.0	6.1	7.9
Marlboro sandy loam: (S79GA-099-9)															
Ap-------0 to 7	A-4 (00)	SM-SC	100	93	45	32	25	21	20	7	113	12	5.1	2.1	3.0
B21t---- 9 to 27	A-4 (05)	CL	100	94	66	59	51	46	32	9	101	19	12.8	6.6	6.2
B3------51 to 65	A-4 (04)	ML	100	91	56	50	41	36	36	10	98	20	6.9	2.0	4.9

TABLE 19.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Americus	Sandy, siliceous, thermic Rhodic Paleudults
Buncombe	Mixed, thermic Typic Udipsamments
Carnegie	Clayey, kaolinitic, thermic Plinthic Paleudults
Clarendon	Fine-loamy, siliceous, thermic Plinthaquic Paleudults
Duplin	Clayey, kaolinitic, thermic Aquic Paleudults
Esto	Clayey, kaolinitic, thermic Typic Paleudults
Faceville	Clayey, kaolinitic, thermic Typic Paleudults
Goldsboro	Fine-loamy, siliceous, thermic Aquic Paleudults
Grady	Clayey, kaolinitic, thermic Typic Paleaquults
Greenville	Clayey, kaolinitic, thermic Rhodic Paleudults
Herod	Fine-loamy, siliceous, nonacid, thermic Typic Fluvaquents
*Hornsville	Clayey, kaolinitic, thermic Aquic Hapludults
Kolomoki	Clayey, kaolinitic, thermic Typic Hapludults
Lakeland	Thermic, coated Typic Quartzipsamments
Lucy	Loamy, siliceous, thermic Arenic Paleudults
*Marlboro	Clayey, kaolinitic, thermic Typic Paleudults
Meggett	Fine, mixed, thermic Typic Albaqualfs
Muckalee	Coarse-loamy, siliceous, nonacid, thermic Typic Fluvaquents
Nankin	Clayey, kaolinitic, thermic Typic Hapludults
Norfolk	Fine-loamy, siliceous, thermic Typic Paleudults
Ocilla	Loamy, siliceous, thermic Aquic Arenic Paleudults
Orangeburg	Fine-loamy, siliceous, thermic Typic Paleudults
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Red Bay	Fine-loamy, siliceous, thermic Rhodic Paleudults
Riverview	Fine-loamy, mixed, thermic Fluventic Dystrochrepts
Tifton	Fine-loamy, siliceous, thermic Plinthic Paleudults
*Troup	Loamy, siliceous, thermic Grossarenic Paleudults
Wagram	Loamy, siliceous, thermic Arenic Paleudults

*This soil is a taxadjunct to the series. See text for description of its characteristics that are outside the range of the series.

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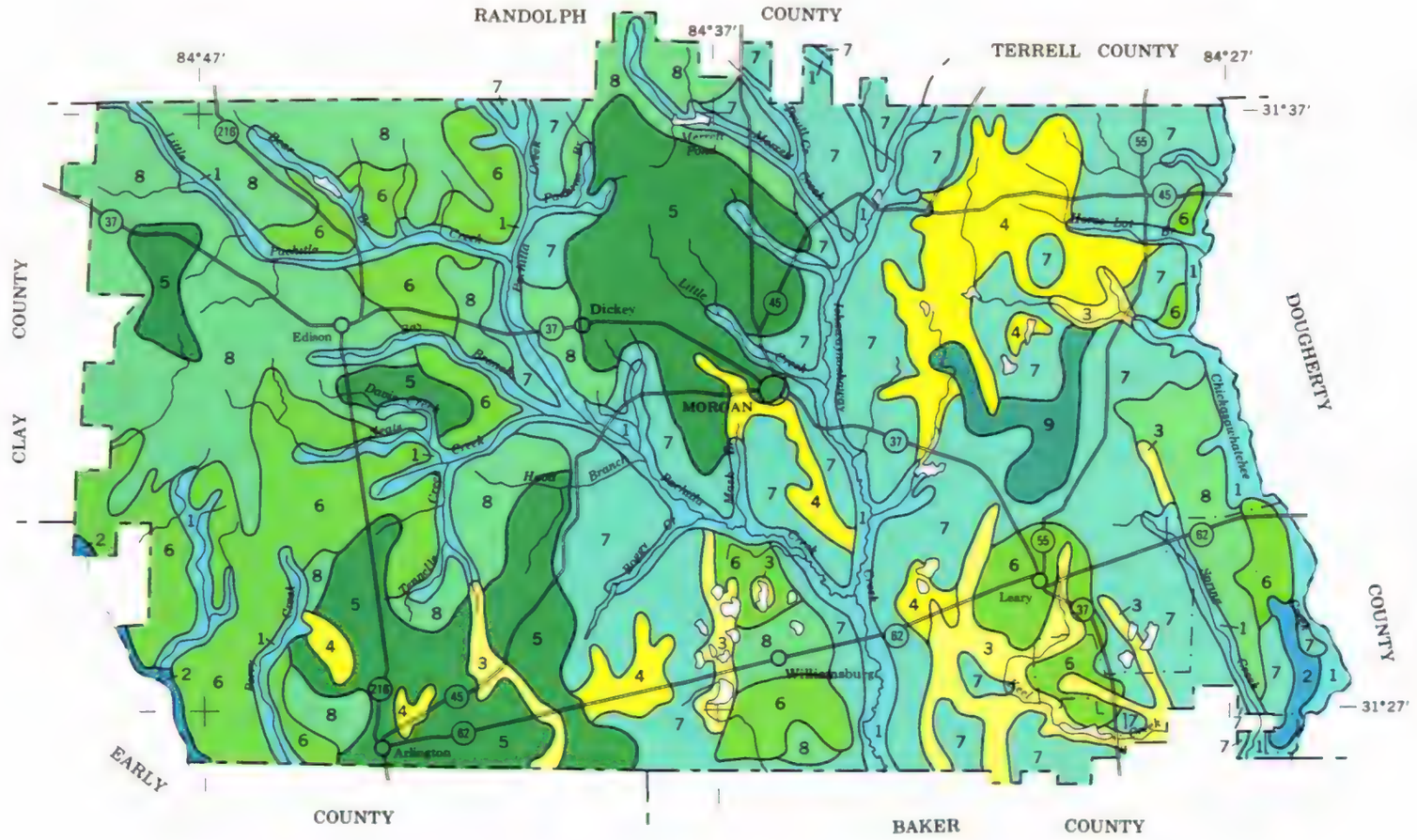

LEGEND

NEARLY LEVEL SOILS ON FLOOD PLAINS OR LOW STREAM TERRACES

1 — Herod-Muckalee: Poorly drained soils that mainly are loamy throughout, on flood plains

2 — Meggett-Muckalee: Poorly drained soils that have a loamy surface layer and a clayey subsoil or poorly drained soils that mainly are loamy throughout, on flood plains and stream terraces

NEARLY LEVEL SOILS ON UPLANDS

3 — Grady-Rains-Goldsboro: Poorly drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil, in depressions and drainageways, and moderately well drained soils that have a sandy surface layer and a loamy subsoil, in low-lying smooth areas

4 — Goldsboro-Grady-Rains: Moderately well drained soils that have a sandy surface layer and a loamy subsoil, in low-lying smooth areas, and poorly drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil, in depressions and drainageways

NEARLY LEVEL TO SLOPING SOILS ON UPLANDS

5 — Tifton-Norfolk-Grady: Well drained soils that have a sandy surface layer and a loamy subsoil, on ridgetops and hillsides, and poorly drained soils that have a loamy surface layer and a clayey subsoil, in depressions

6 — Greenville-Faceville: Well drained soils that have a loamy surface layer and a clayey subsoil, on ridgetops and hillsides

7 — Orangeburg-Red Bay-Norfolk: Well drained soils that have a sandy or loamy surface layer and a loamy subsoil, on ridgetops and hillsides

8 — Faceville-Greenville-Tifton: Well drained soils that have a loamy surface layer and a clayey subsoil or a predominantly sandy surface layer and a loamy subsoil, on ridgetops and hillsides

9 — Wagram-Norfolk-Orangeburg: Well drained soils that have a sandy surface layer or a sandy surface layer and thick, sandy subsurface layer and a loamy subsoil, on ridgetops

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SOIL CONSERVATION SERVICE
UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATIONS

GENERAL SOIL MAP

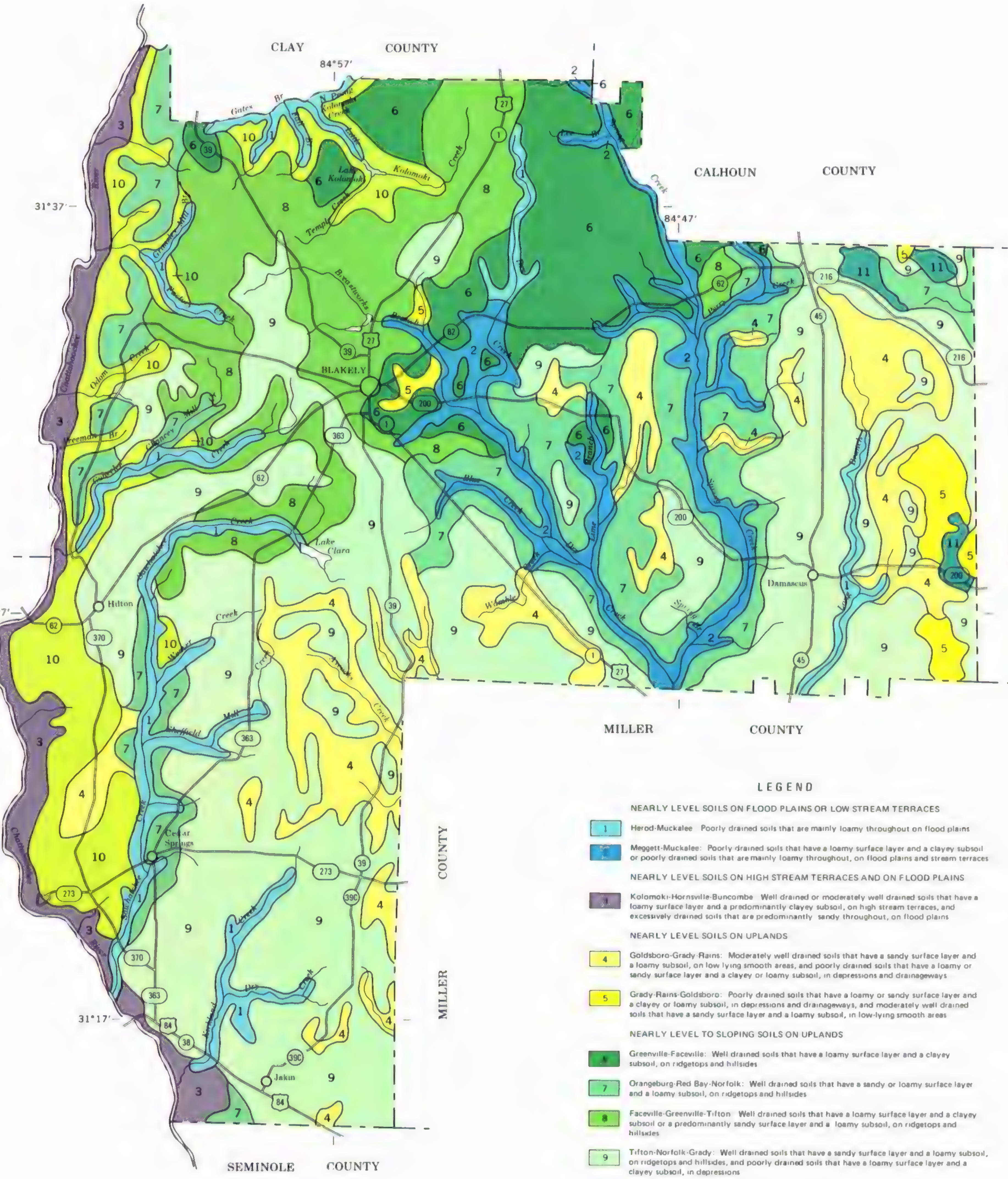
CALHOUN COUNTY, GEORGIA

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



LEGEND

NEARLY LEVEL SOILS ON FLOOD PLAINS OR LOW STREAM TERRACES

1 — Herod-Muckalee: Poorly drained soils that are mainly loamy throughout on flood plains

2 — Meggett-Muckalee: Poorly drained soils that have a loamy surface layer and a clayey subsoil or poorly drained soils that are mainly loamy throughout, on flood plains and stream terraces

NEARLY LEVEL SOILS ON HIGH STREAM TERRACES AND ON FLOOD PLAINS

3 — Kolomoki-Hornsville-Buncombe: Well drained or moderately well drained soils that have a loamy surface layer and a predominantly clayey subsoil, on high stream terraces, and excessively drained soils that are predominantly sandy throughout, on flood plains

NEARLY LEVEL SOILS ON UPLANDS

4 — Goldsboro-Grady-Rains: Moderately well drained soils that have a sandy surface layer and a loamy subsoil, on low lying smooth areas, and poorly drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil, in depressions and drainageways

5 — Grady-Rains-Goldsboro: Poorly drained soils that have a loamy or sandy surface layer and a clayey or loamy subsoil, in depressions and drainageways, and moderately well drained soils that have a sandy surface layer and a loamy subsoil, in low-lying smooth areas

NEARLY LEVEL TO SLOPING SOILS ON UPLANDS

6 — Greenville-Faceville: Well drained soils that have a loamy surface layer and a clayey subsoil, on ridgetops and hillsides

7 — Orangeburg-Red Bay-Norfolk: Well drained soils that have a sandy or loamy surface layer and a loamy subsoil, on ridgetops and hillsides

8 — Faceville-Greenville-Tifton: Well drained soils that have a loamy surface layer and a clayey subsoil or a predominantly sandy surface layer and a loamy subsoil, on ridgetops and hillsides

9 — Tifton-Norfolk-Grady: Well drained soils that have a sandy surface layer and a loamy subsoil, on ridgetops and hillsides, and poorly drained soils that have a loamy surface layer and a clayey subsoil, in depressions

10 — Troup-Wagram-Lakeland: Well drained soils that have a sandy surface layer and thick sandy subsurface layer and a loamy subsoil and excessively drained soils that are sandy throughout, on ridgetops and hillsides

11 — Wagram-Norfolk-Orangeburg: Well drained soils that have a sandy surface layer or a sandy surface layer and thick sandy subsurface layer and a loamy subsoil, on ridgetops

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GENERAL SOIL MAP

EARLY COUNTY, GEORGIA

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

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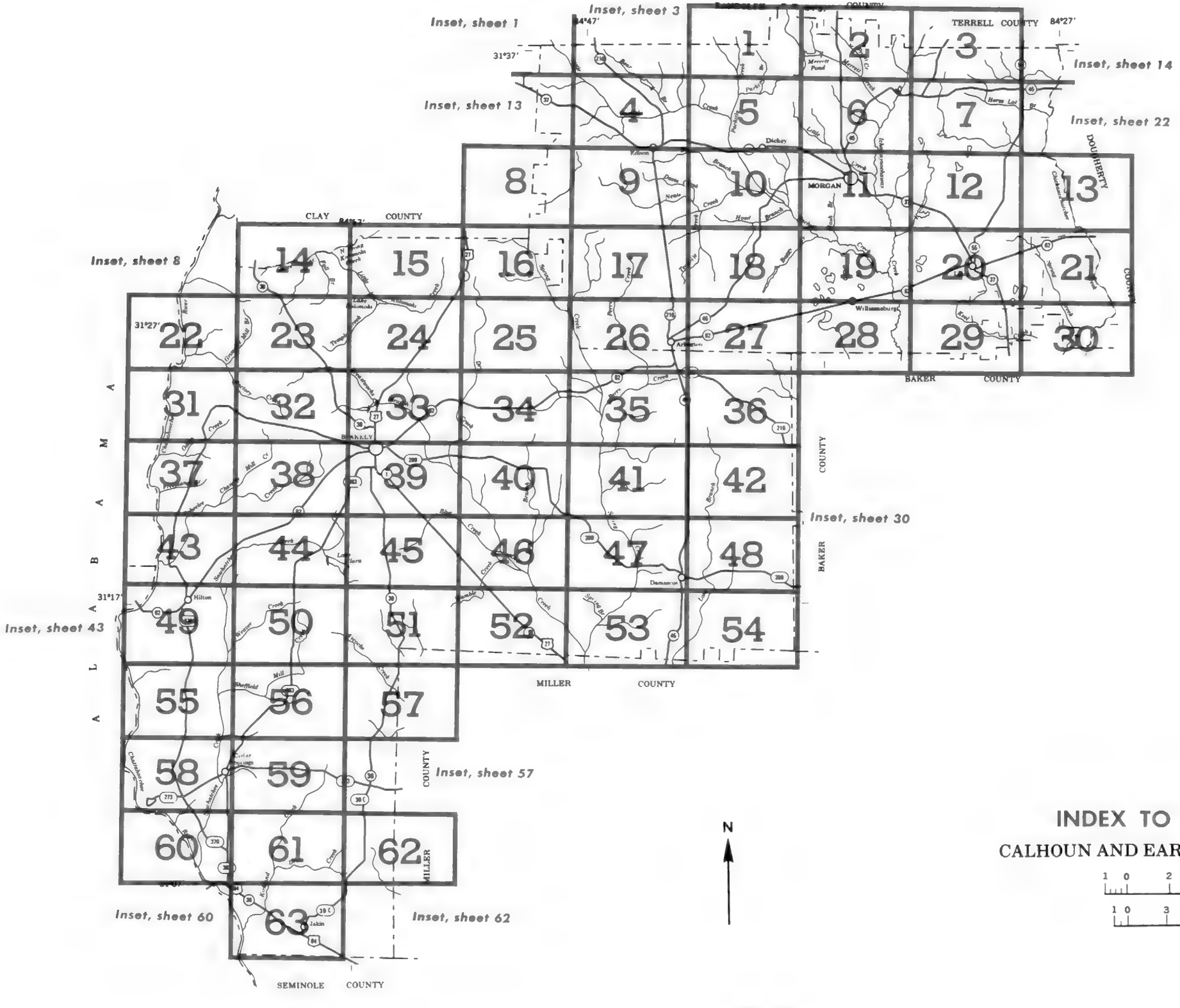


N

INDEX TO MAP SHEETS

CALHOUN AND EARLY COUNTIES, GEORGIA

1 0 2 4 6 Miles

1 0 3 6 9 Km

SOIL LEGEND

The first letter of the map symbol, always a capital, is the initial letter of the soil name. The second letter is a capital, if the mapping unit is broadly defined: 1/ otherwise, it is a small letter. The third letter, if used, is a capital letter and connotes slope class. Symbols without a slope letter are for level soils or miscellaneous areas

SYMBOL	NAME
AmB	Americus loamy sand, 0 to 5 percent slopes
AmC	Americus loamy sand, 5 to 8 percent slopes
AmD	Americus loamy sand, 8 to 12 percent slopes
BmA	Buncombe loamy sand, 0 to 2 percent slopes
CaB2	Carnegie sandy loam, 3 to 5 percent slopes, eroded
CaC2	Carnegie sandy loam, 5 to 8 percent slopes, eroded
CaD2	Carnegie sandy loam, 8 to 12 percent slopes, eroded
CnA	Clarendon loamy sand, 0 to 2 percent slopes
DuA	Duplin sandy loam, 0 to 2 percent slopes
EsD	Esto sandy loam, 8 to 15 percent slopes
FeA	Faceville sandy loam, 0 to 2 percent slopes
FeB	Faceville sandy loam, 2 to 5 percent slopes
FeC2	Faceville sandy loam, 5 to 8 percent slopes, eroded
FeD	Faceville sandy loam, 8 to 12 percent slopes
GoA	Goldsboro loamy sand, 0 to 2 percent slopes
Gr	Grady loam
GsA	Greenville sandy loam, 0 to 2 percent slopes
GsB	Greenville sandy loam, 2 to 5 percent slopes
GsC	Greenville sandy loam, 5 to 8 percent slopes
GsD	Greenville sandy loam, 8 to 12 percent slopes
GvC2	Greenville sandy clay loam, 5 to 8 percent slopes, eroded
HM	Herod-Muckalee association
HvA	Hornsville fine sandy loam, 0 to 2 percent slopes
KoA	Kolomoki fine sandy loam, 0 to 2 percent slopes
LmB	Lucy loamy sand, 0 to 5 percent slopes
LmC	Lucy loamy sand, 5 to 8 percent slopes
MaA	Marlboro sandy loam, 0 to 2 percent slopes
MaB	Marlboro sandy loam, 2 to 5 percent slopes
Me	Meggett loam
MM	Meggett-Muckalee association
NeB	Nankin-Esto sandy loams, 2 to 5 percent slopes
NeC2	Nankin-Esto sandy loams, 5 to 8 percent slopes, eroded
NoA	Norfolk loamy sand, 0 to 2 percent slopes
NoB	Norfolk loamy sand, 2 to 5 percent slopes
NoC	Norfolk loamy sand, 5 to 8 percent slopes
Oc	Ocilla loamy sand
OeA	Orangeburg loamy sand, 0 to 2 percent slopes
OeB	Orangeburg loamy sand, 2 to 5 percent slopes
OeC	Orangeburg loamy sand, 5 to 8 percent slopes
OeD	Orangeburg loamy sand, 8 to 12 percent slopes
OTE	Orangeburg, Esto and Troup soils, 12 to 25 percent slopes
Pe	Pelham loamy sand
Ra	Rains loamy sand
ReA	Red Bay sandy loam, 0 to 2 percent slopes
ReB	Red Bay sandy loam, 2 to 5 percent slopes
ReC	Red Bay sandy loam, 5 to 8 percent slopes
ReD	Red Bay sandy loam, 8 to 12 percent slopes
Ro	Riverview loam
TfA	Tifton loamy sand, 0 to 2 percent slopes
TfB	Tifton loamy sand, 2 to 5 percent slopes
TgC2	Tifton sandy loam, 5 to 8 percent slopes, eroded
ThD	Troup sand, 8 to 12 percent slopes
TLB	Troup-Lakeland association, 1 to 5 percent slopes
TLC	Troup-Lakeland association, 5 to 8 percent slopes
UdD	Udorthents, 2 to 20 percent slopes
Up	Udorthents-Pits complex
UkB	Urbanland-Kolomoki complex, 0 to 5 percent slopes
WaB	Wagram loamy sand, 0 to 5 percent slopes
WaC	Wagram loamy sand, 5 to 8 percent slopes

1/ The composition of broadly defined units is apt to be more variable than the other units in the survey area. However, mapping has been controlled well enough to be interpreted for the anticipated uses of the areas involved

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

National, state or province
County or parish
Minor civil division
Reservation (national forest or park, state forest or park, and large airport)
Land grant
Limit of soil survey (label)
Field sheet matchline & neatline
AD HOC BOUNDARY (label)
Small airport, airfield, park, oilfield, cemetery, or flood pool
STATE COORDINATE TICK
LAND DIVISION CORNERS (sections and land grants)

ROADS

Divided (median shown if scale permits)
Other roads
Trail

ROAD EMBLEM & DESIGNATIONS

Interstate
Federal
State
County, farm or ranch

RAILROAD
POWER TRANSMISSION LINE (normally not shown)
PIPE LINE (normally not shown)
FENCE (normally not shown)

LEVEES

Without road
With road
With railroad

DAMS

Large (to scale)
Medium or small

PITS

Gravel pit
Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)
Church
School
Indian mound (label)
Located object (label)
Tank (label)
Wells, oil or gas
Windmill
Kitchen midden

WATER FEATURES

DRAINAGE

Perennial, double line
Perennial, single line
Intermittent
Drainage end
Canals or ditches
Double-line (label)
Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

Perennial
Intermittent

MISCELLANEOUS WATER FEATURES

Marsh or swamp
Spring
Well, artesian
Well, irrigation
Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

Bedrock (points down slope)
Other than bedrock (points down slope)

SHORT STEEP SLOPE
GULLY
DEPRESSION OR SINK
SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

Blowout
Clay spot
Gravelly spot
Gumbo, slick or scabby spot (sodic)
Dumps and other similar non soil areas
Prominent hill or peak
Rock outcrop (includes sandstone and shale)
Saline spot
Sandy spot
Severely eroded spot
Slide or slip (tips point upslope)
Stony spot, very stony spot
Borrow area (1/3 to 3 acres in size)
Pipeline pumpstation
Power substation

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 1

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 1

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

335 000 FEET

595 000 FEET

RANDOLPH COUNTY

CLAY COUNTY

Little Pachitla Creek

McKinnon Branch

(Joins sheet, sheet 3)

RANDOLPH COUNTY

Merrett Creek

Cowarts Store

(Joins sheet 3)

RANDOLPH COUNTY

Carter Creek

Pachitla Creek

Parkins Branch

(Joins sheet, sheet 3)

585 000 FEET

355 000 FEET

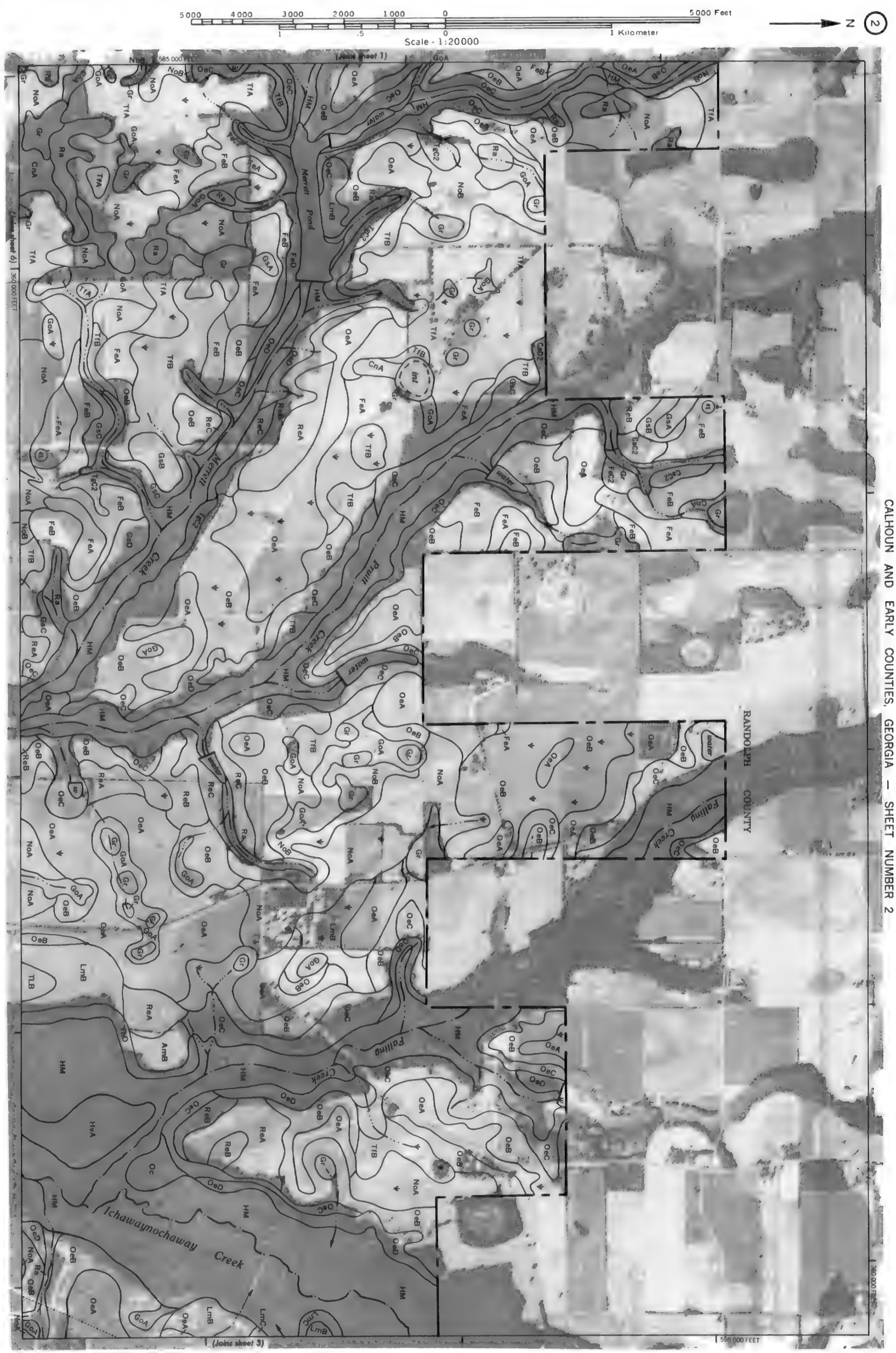
1

N

5 000 Feet

1 Kilometer

Scale - 1:20000



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CALHOUN AND EARLY COUNTIES, GEORGIA NO. 3

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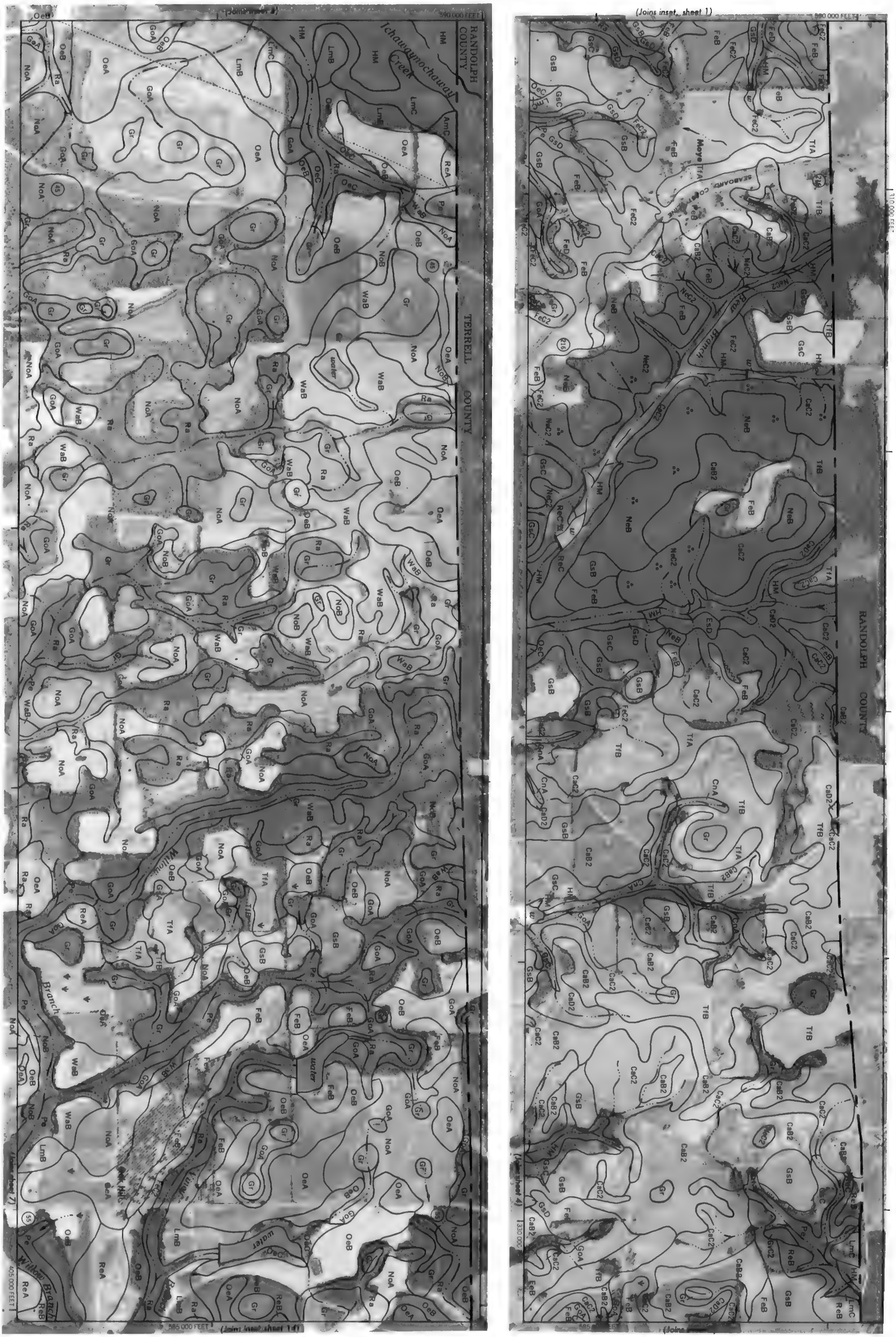

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 3

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 4

4

N

Scale - 1:20000

0 1 Kilometer

0 5000 Feet

1 000 2000 3000 4000 5000

(Joins sheet 3) 530 000 FEET

(Joins sheet 9) 310 000 FEET

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CALHOUN AND EARLY COUNTIES, GEORGIA NO. 4

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CALHOUN AND EARLY COUNTIES, GEORGIA NO. 7

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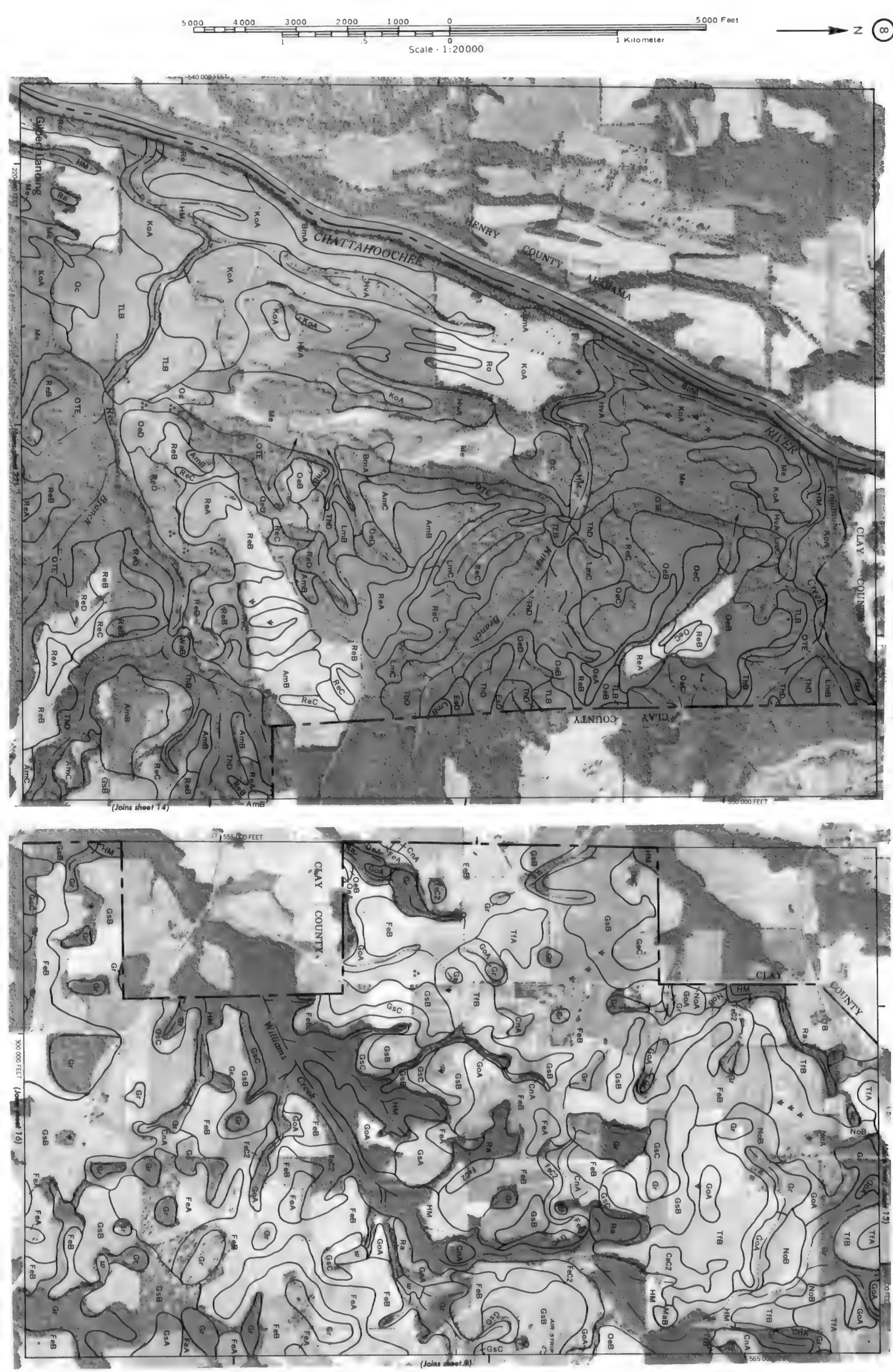
5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 7



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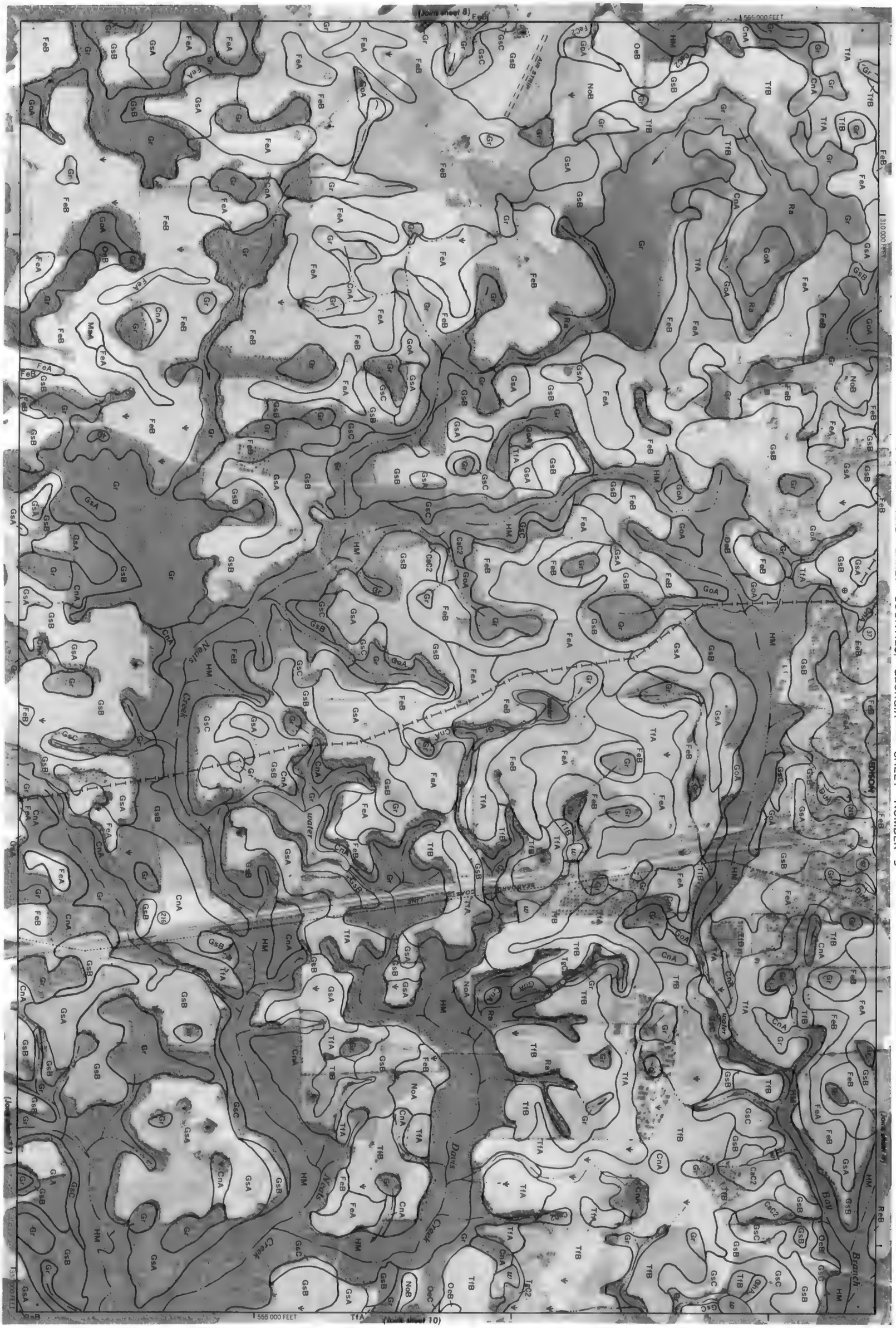

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5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 12

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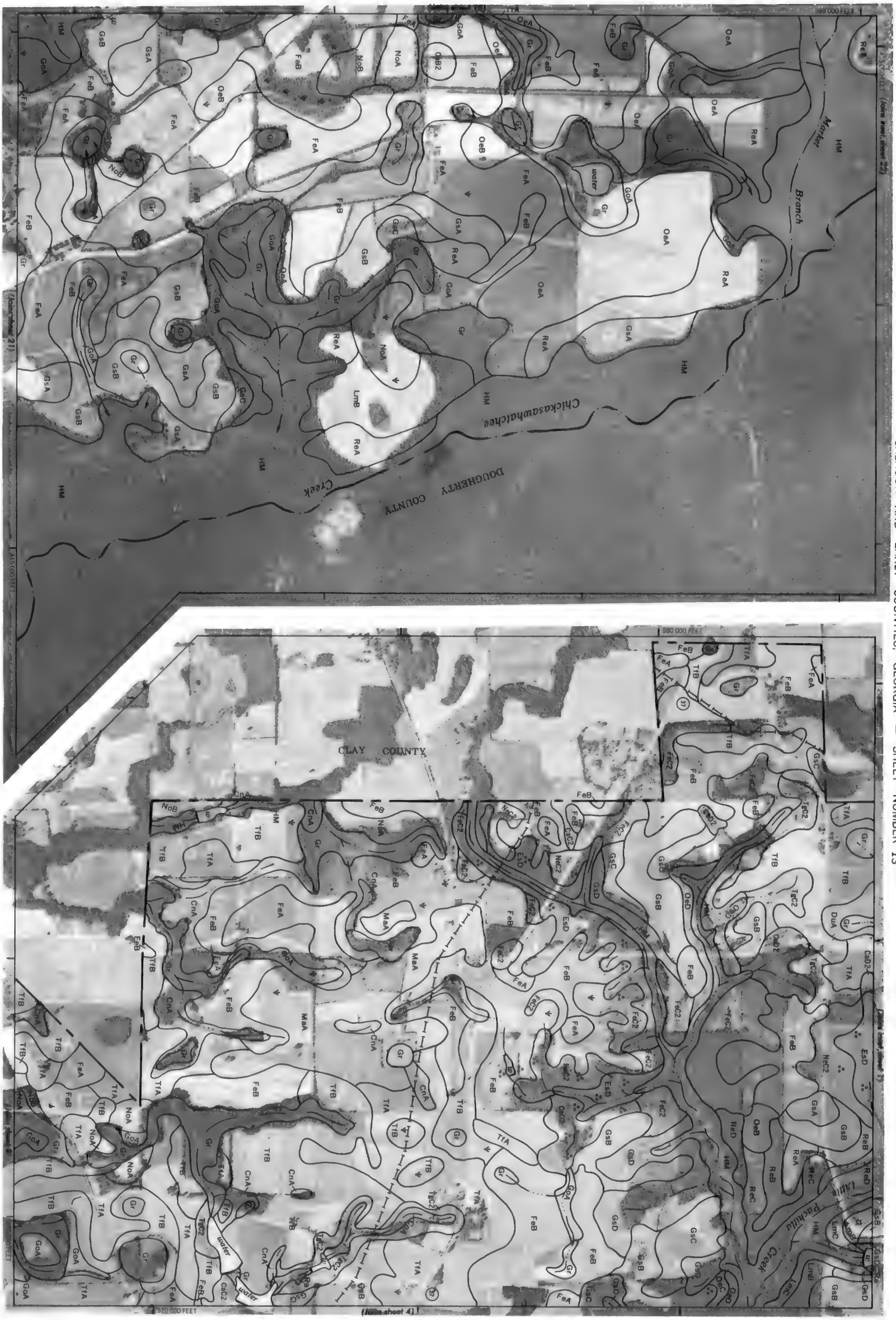
CALHOUN AND EARLY COUNTIES, GEORGIA NO. 12

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 13

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

13

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 13

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 14

14

N

5,000 Feet

1 Kilometer

Scale - 1:20000

410 000 FEET

TERRELL COUNTY

DOUGHERTY COUNTY

CLAY COUNTY

Chickasawhatchee Creek

Willow Branch

Gates Branch

Kolomoki Creek

North Prong Kolomoki Creek

Little Kolomoki Creek

(Joins sheet 3)

585 000 FEET

1 130 000 FEET

405 000 FEET

(Joins inset, sheet 22)

(Joins sheet 23)

235 000 FEET

(Joins sheet 15)

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 14

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

15

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 15

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

17

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 18

18

N

5,000 Feet

1 Kilometer

Scale - 1:20000

0 .5 0 1

1000 2000 3000 4000 5000

(Joins sheet 17)

(Joins sheet 19)

(Joins sheet 17)

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 18

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

19

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 19

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 20

20

N

Scale · 1:20000

1 Kilometer

5,000 Feet

(Joins sheet 12)

(Joins sheet 29)

535 000 FEET

390 000 FEET

Leary

CHICKASAWHATCHEE WILDLIFE MANAGEMENT AREA

GEORGIA

CENTRAL

Dry Branch

Spring Cr.

water

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 20

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 21

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

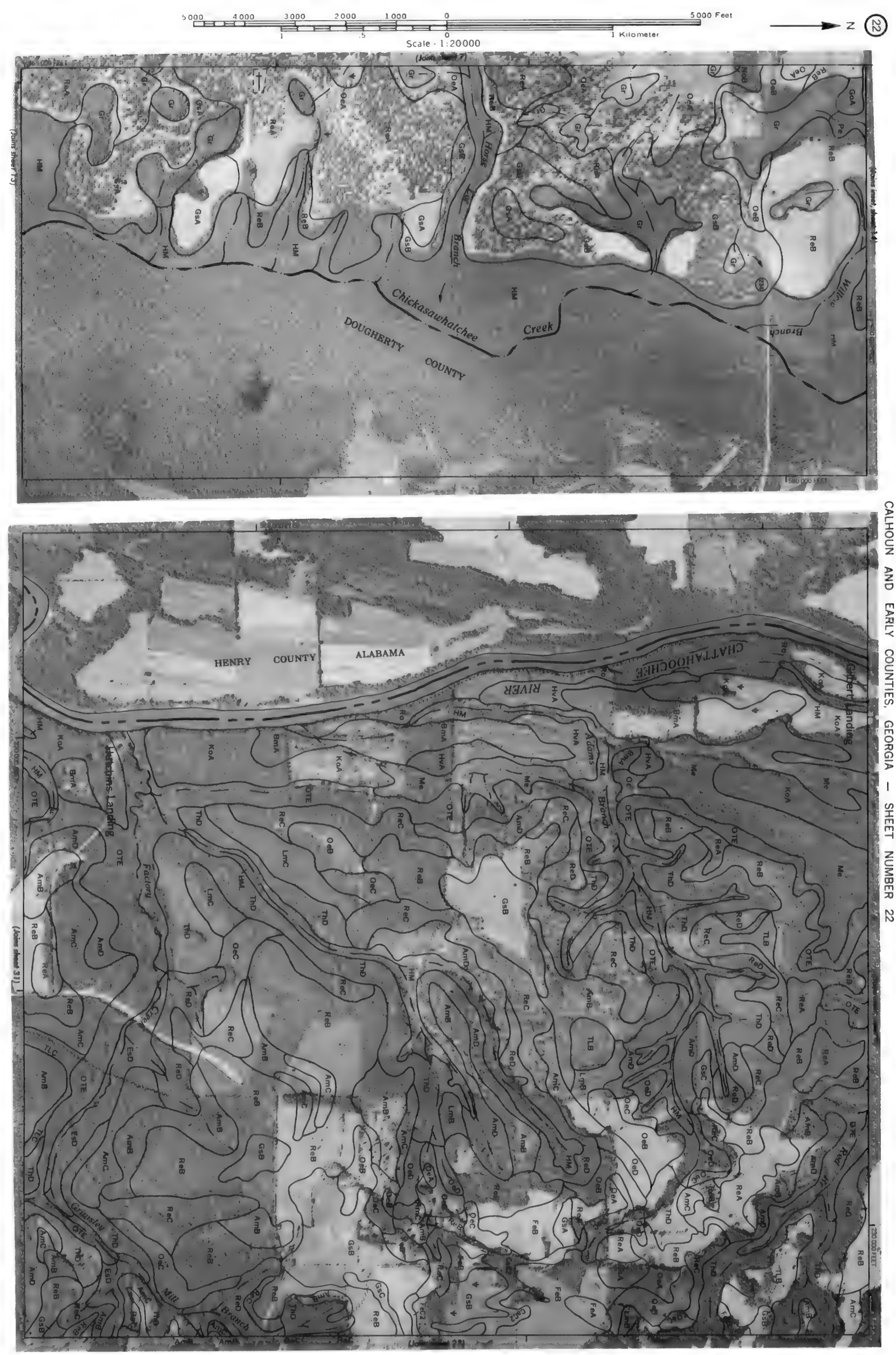
1 .5 0 1 Kilometer

Scale - 1:20000

N

21

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 21

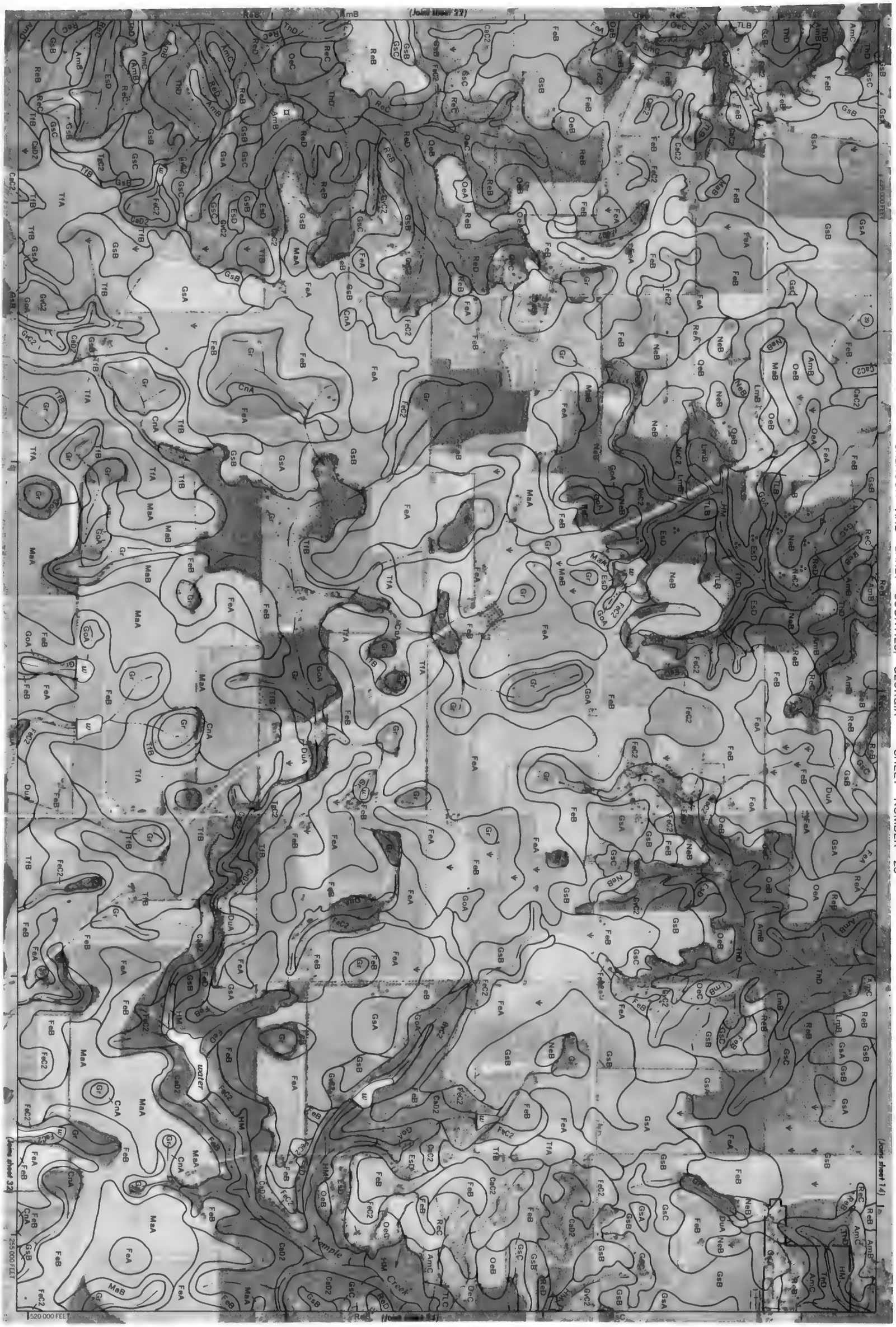


CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 22

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 22

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



5 000 4 000 3 000 2 000 1 000 0 5 000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

24

N

5 000 Feet

1 Kilometer

Scale 1:20000

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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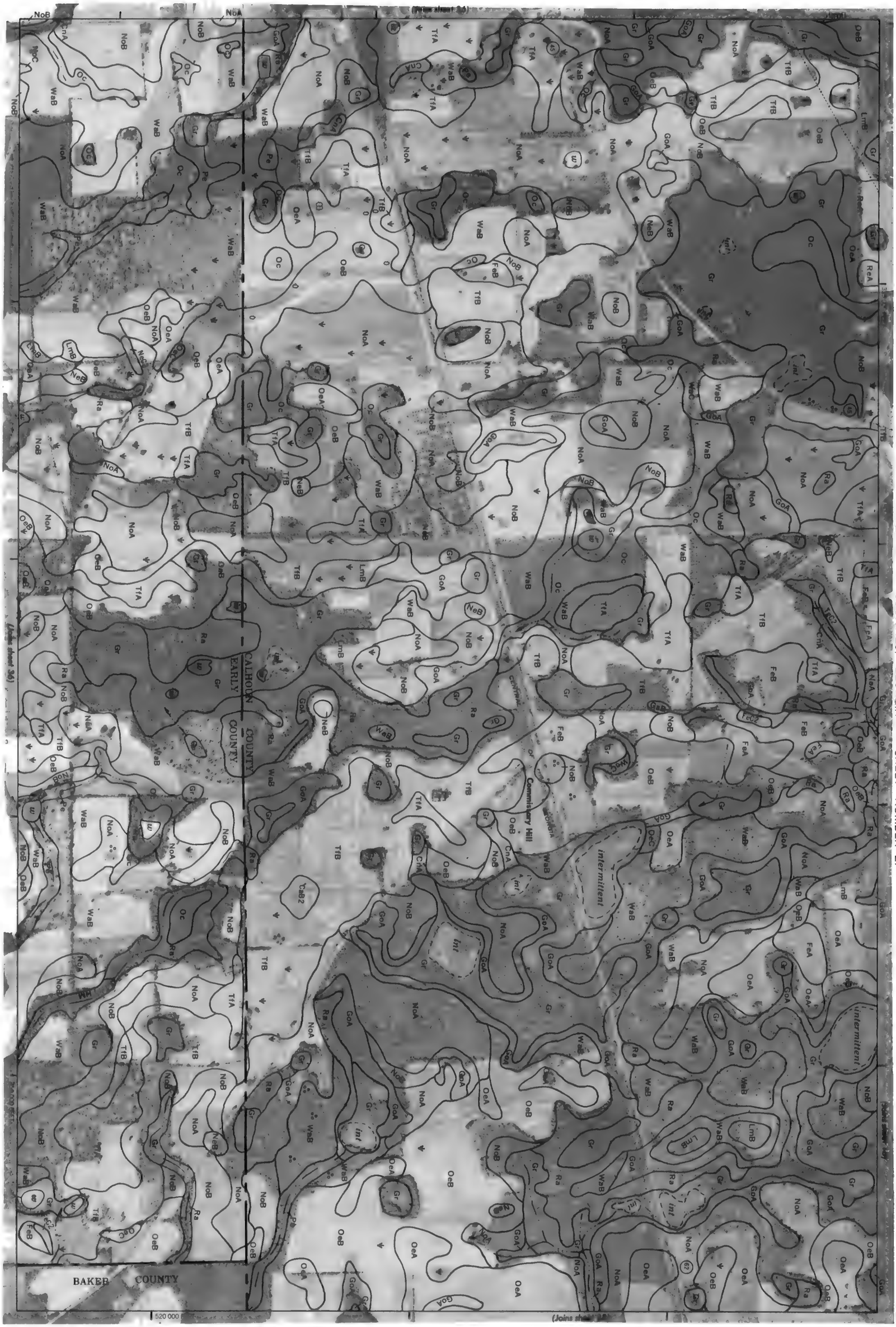
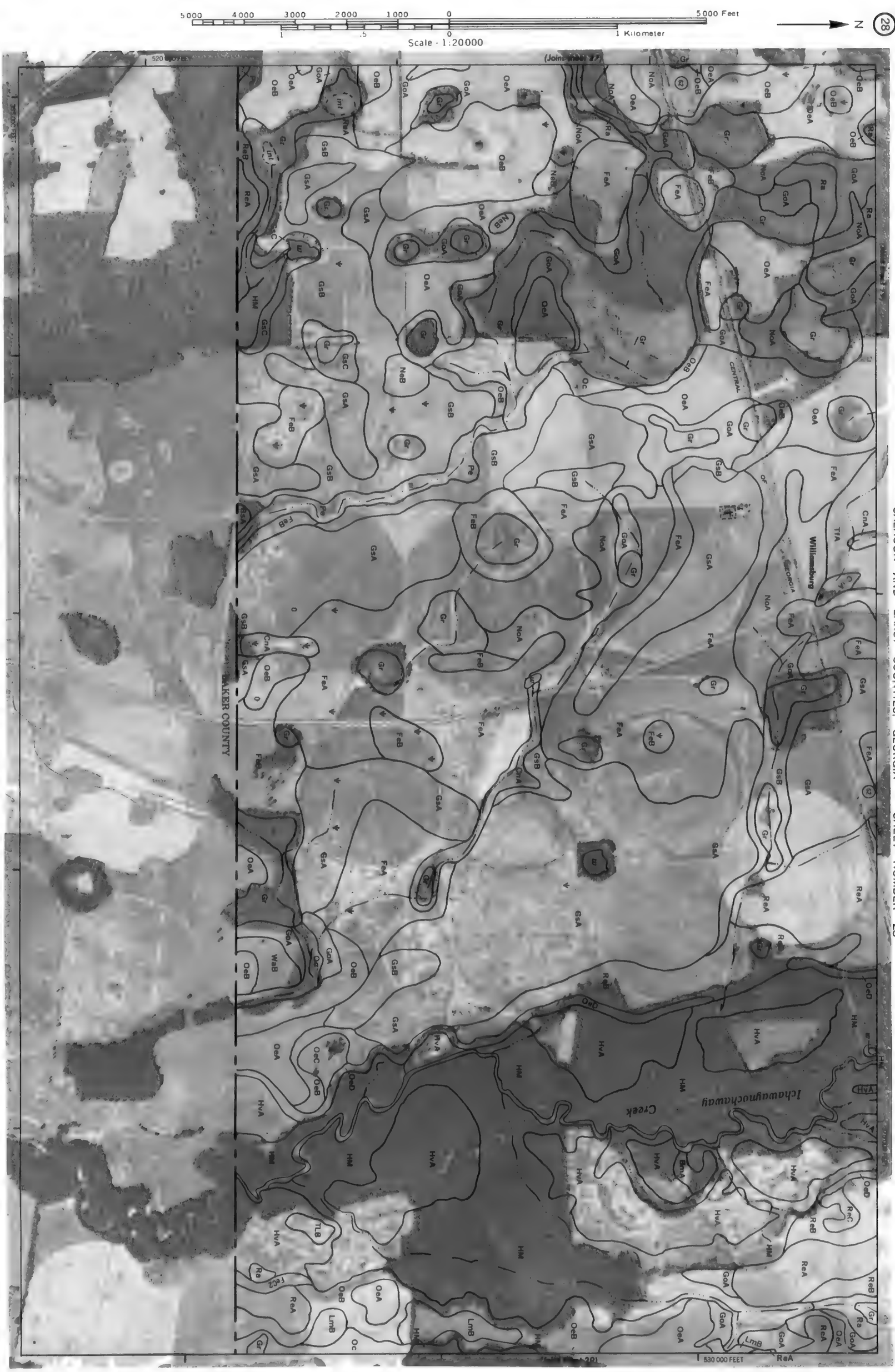
CALHOUN AND EARLY COUNTIES, GEORGIA NO. 27

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 27



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

30

N

5000 Feet

1 Kilometer

Scale - 1:20000

0 1000 2000 3000 4000 5000

.5 0 1

(Joins sheet 31)

425 000 FEET

Jones Island

CHICKASAWHATCHEE WILDLIFE MANAGEMENT AREA

Spring Creek

Chickasawhatchee Creek

DOUGHERTY COUNTY

BAKER COUNTY

405 000 FEET

357 000 FEET

488 000 FEET

483 000 FEET

355 000 FEET

(Joins sheet 48)

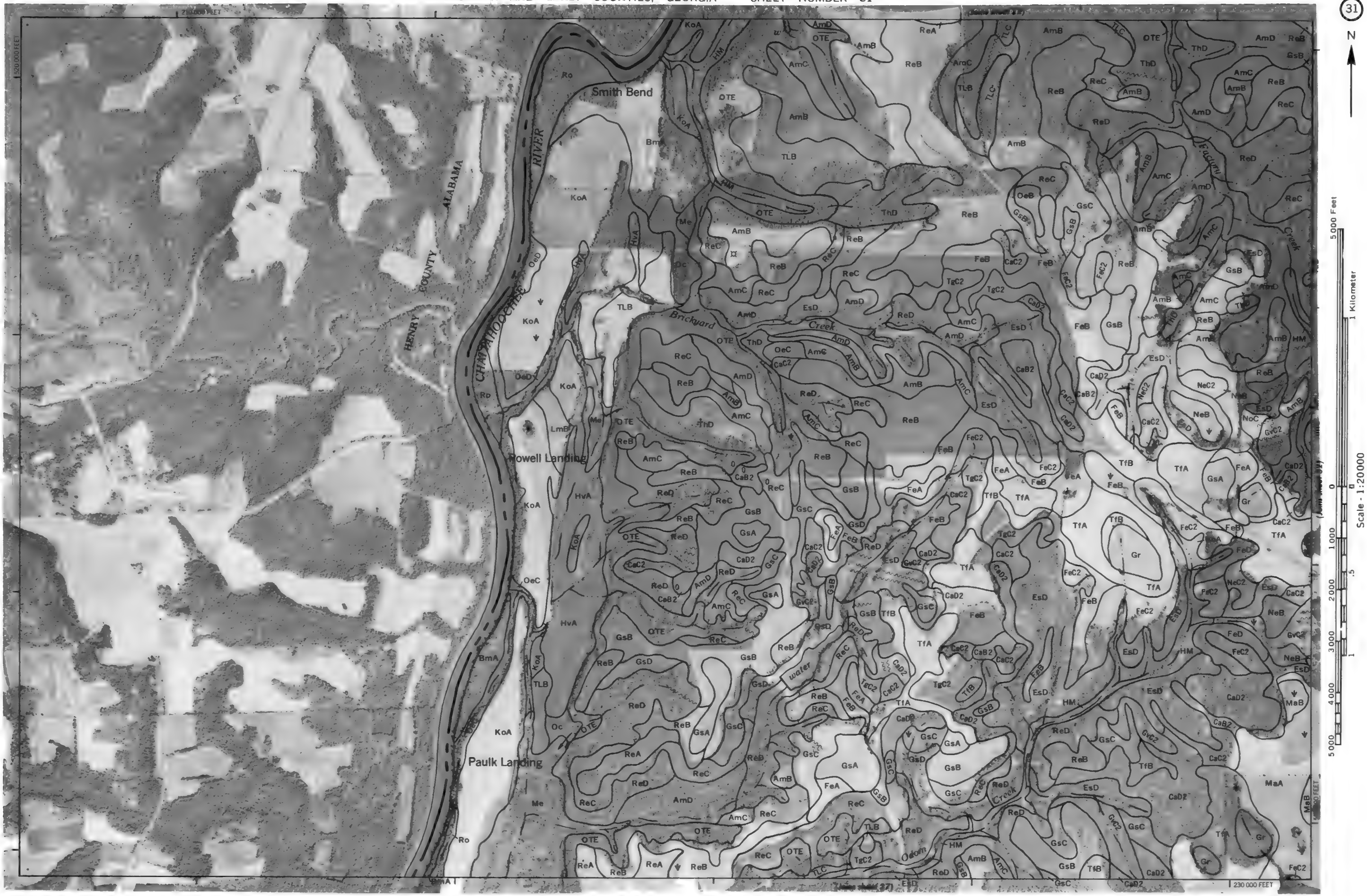
(Joins sheet 42)

2000 AND 5000-FOOT GRID TICKS

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 30

(31)



CALHOUN AND EARLY COUNTIES, GEORGIA NO. 31

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 33

33

N

Scale - 1:20000

5000 Feet

1 Kilometer

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 33

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

BLAKELY (county seat)

Lake Louise

Lake Myrtice

Breastworks Branch

Dry Creek

CENTRAL GEORGIA AIRPORT

COUNTY HARLY

water

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 34

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 35

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

35

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 35

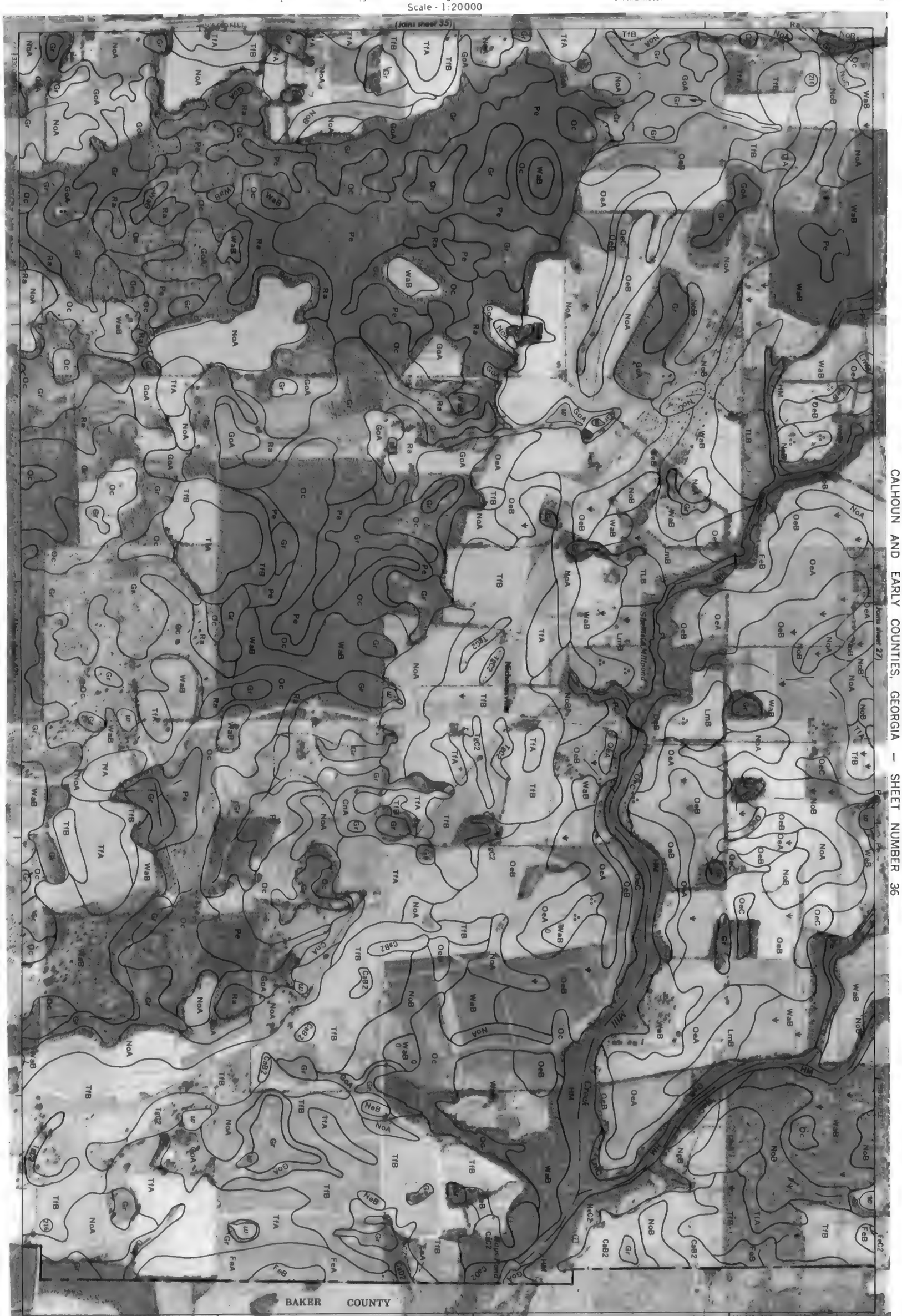
5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

36



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

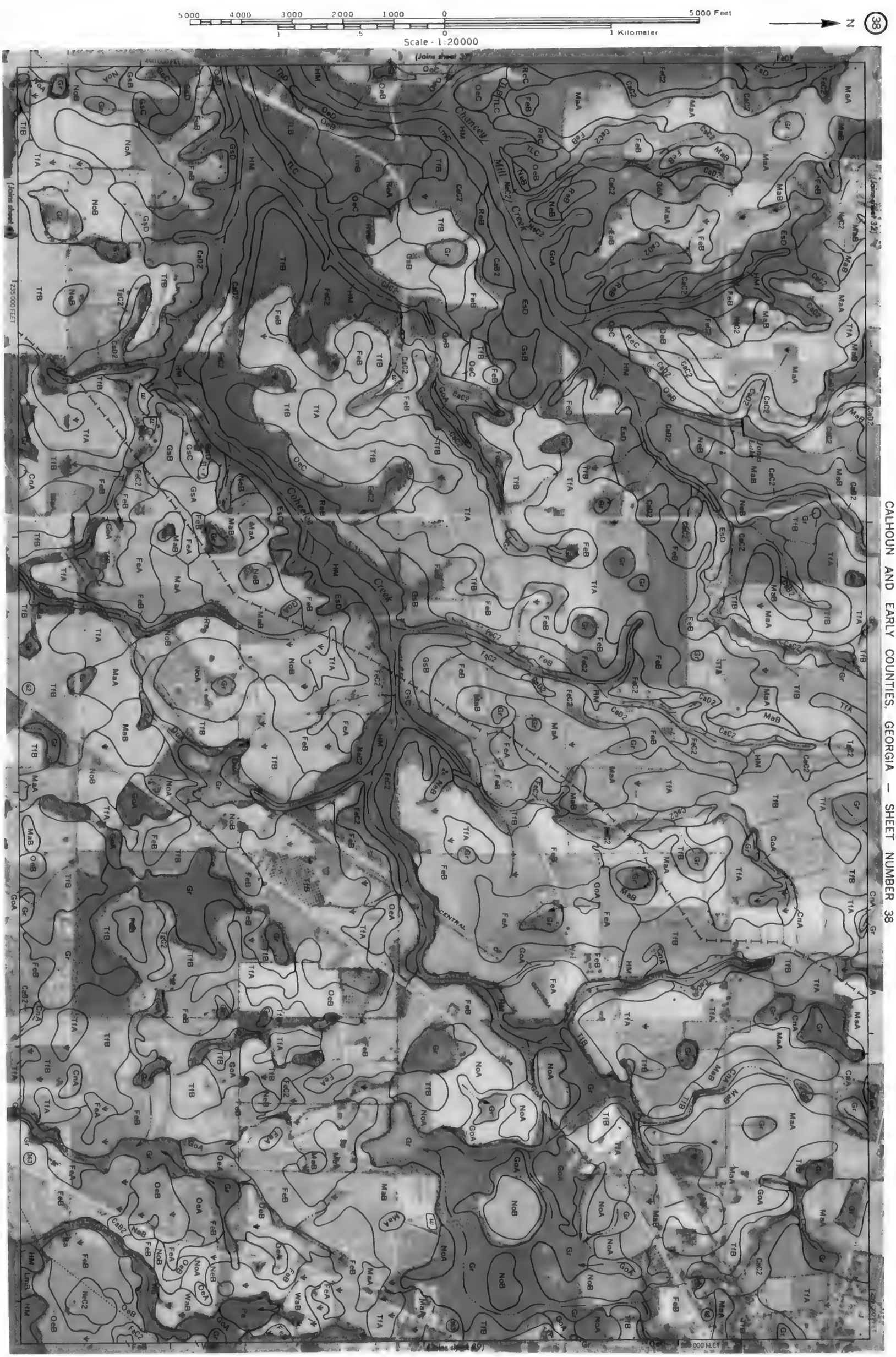
5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

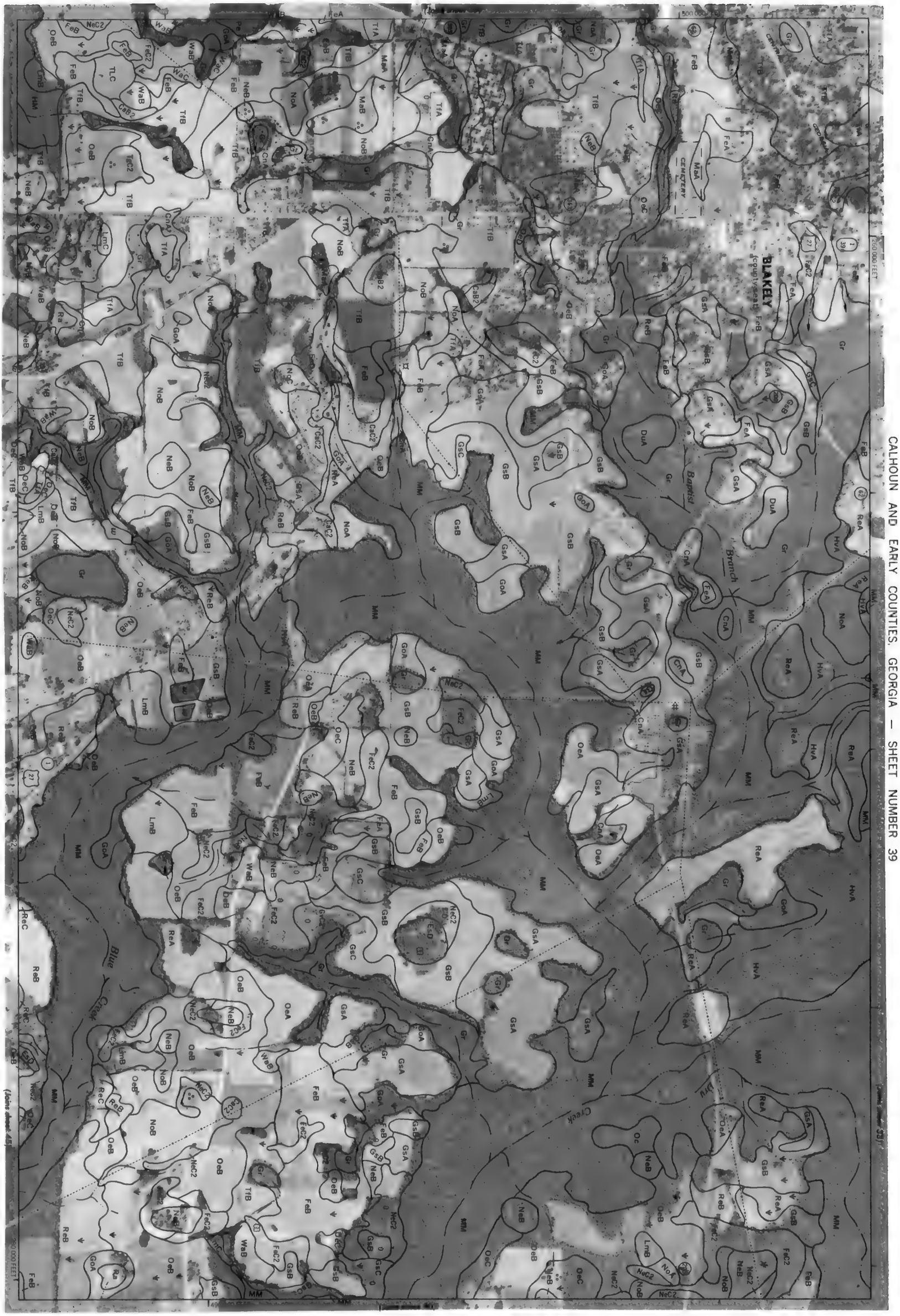
37



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 39

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 39

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

39

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 40

40

N

5000 Feet

1 Kilometer

Scale - 1:20000

(Joins sheet 39)

(Joins sheet 41)

305 000 FEET

280 000 FEET

(Joins sheet 46)

Dry Creek

Lime Branch

water

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 40

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

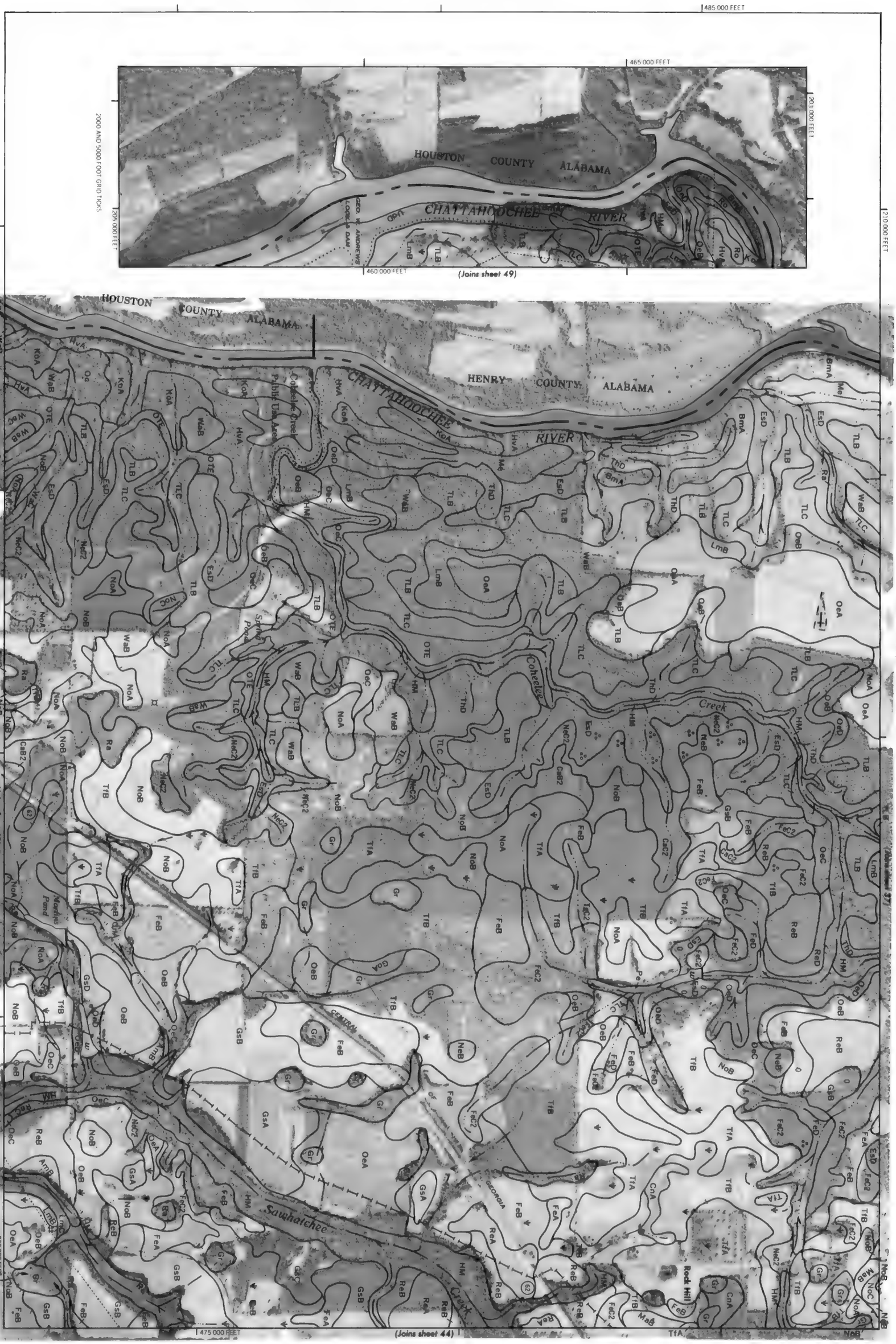
N

41

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 43

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 43

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 44

44

N

Scale - 1:20000

5000 Feet 0 1 Kilometer

Sawhatchee Creek

Lake Clara

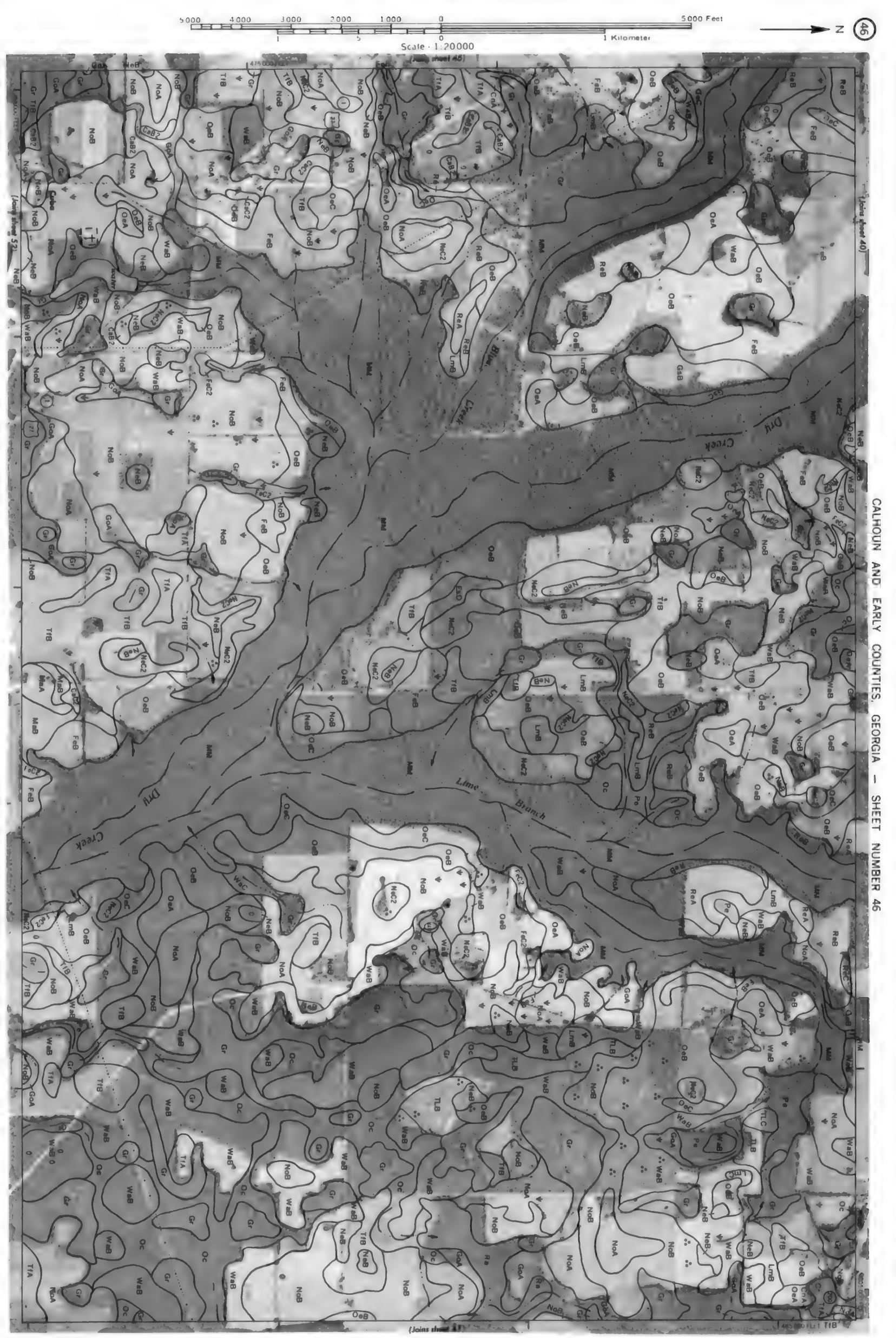
(Joins sheet 38)

(Joins sheet 50)

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 44

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 46

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 47

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 47

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

47

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 48

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 50

50

N

5,000 Feet

1 Kilometer

0

Scale - 1:20000

1 000

2 000

3 000

4 000

5 000

.5

1

(Joins sheet 24)

(Joins sheet 49)

(Joins sheet 51)

235 000 FEET

260 000 FEET

water

Weaver

Creek

Sheffield

Mill

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 50

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

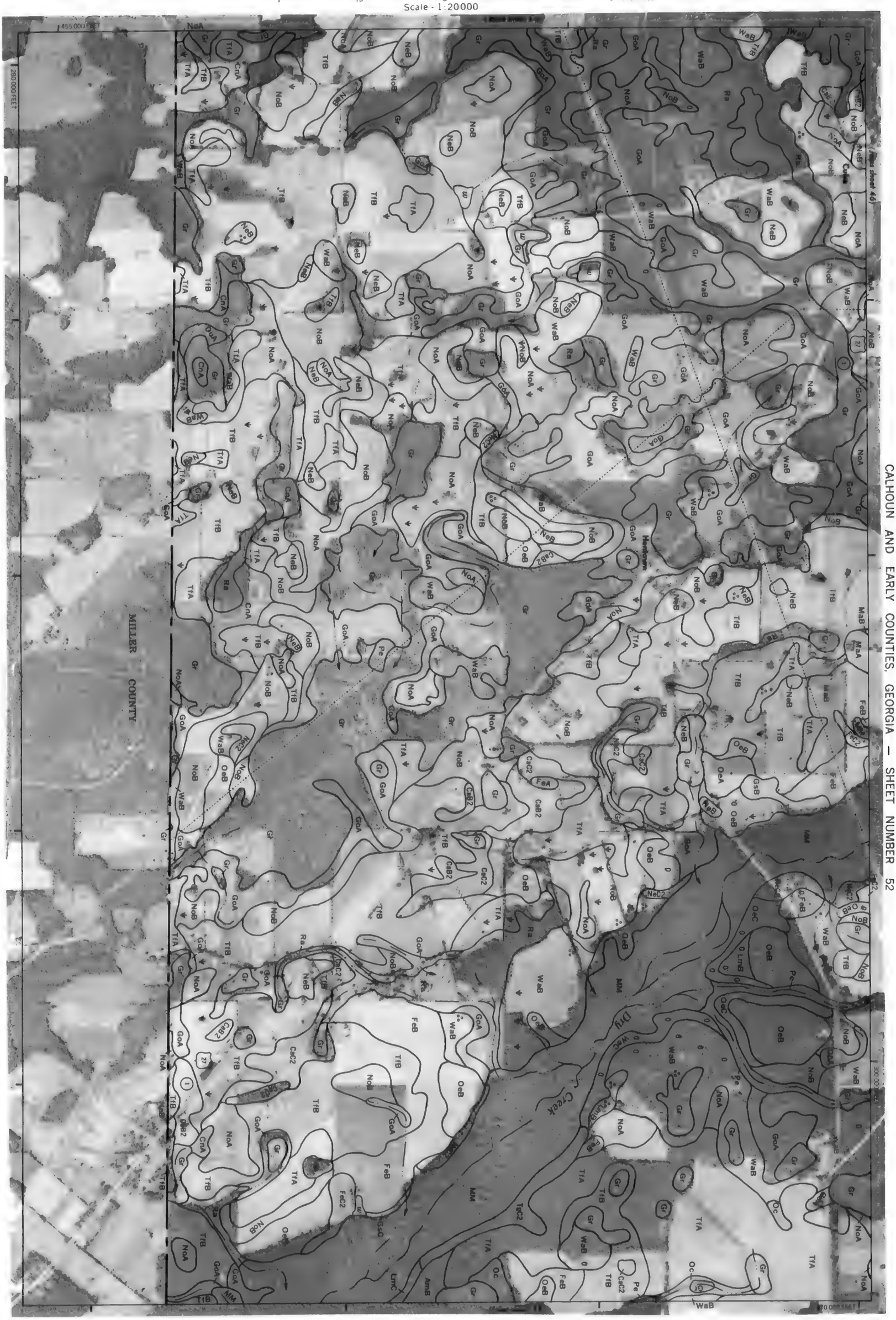
1 .5 0 1 Kilometer

Scale - 1:20000

N

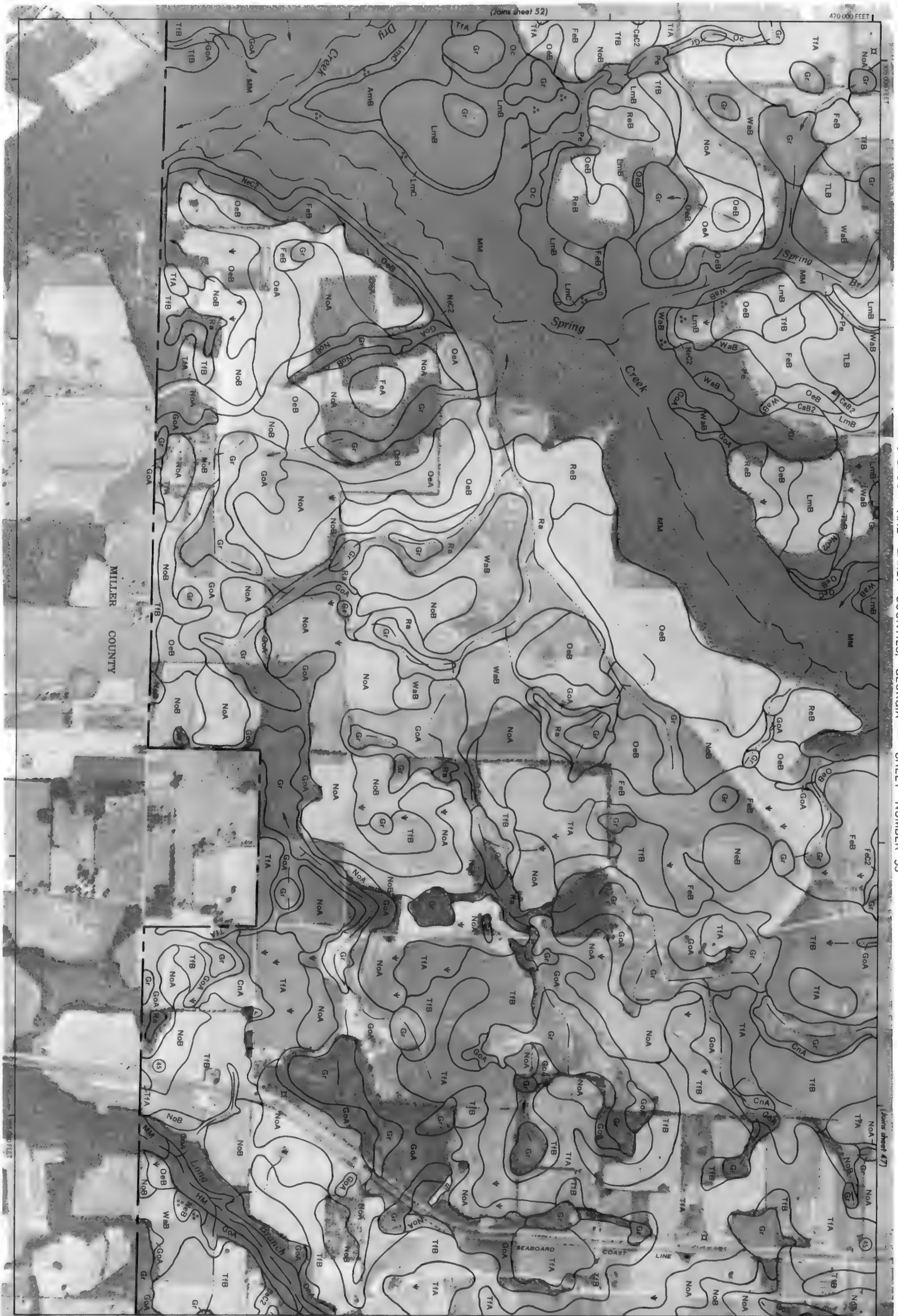
51

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 51



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

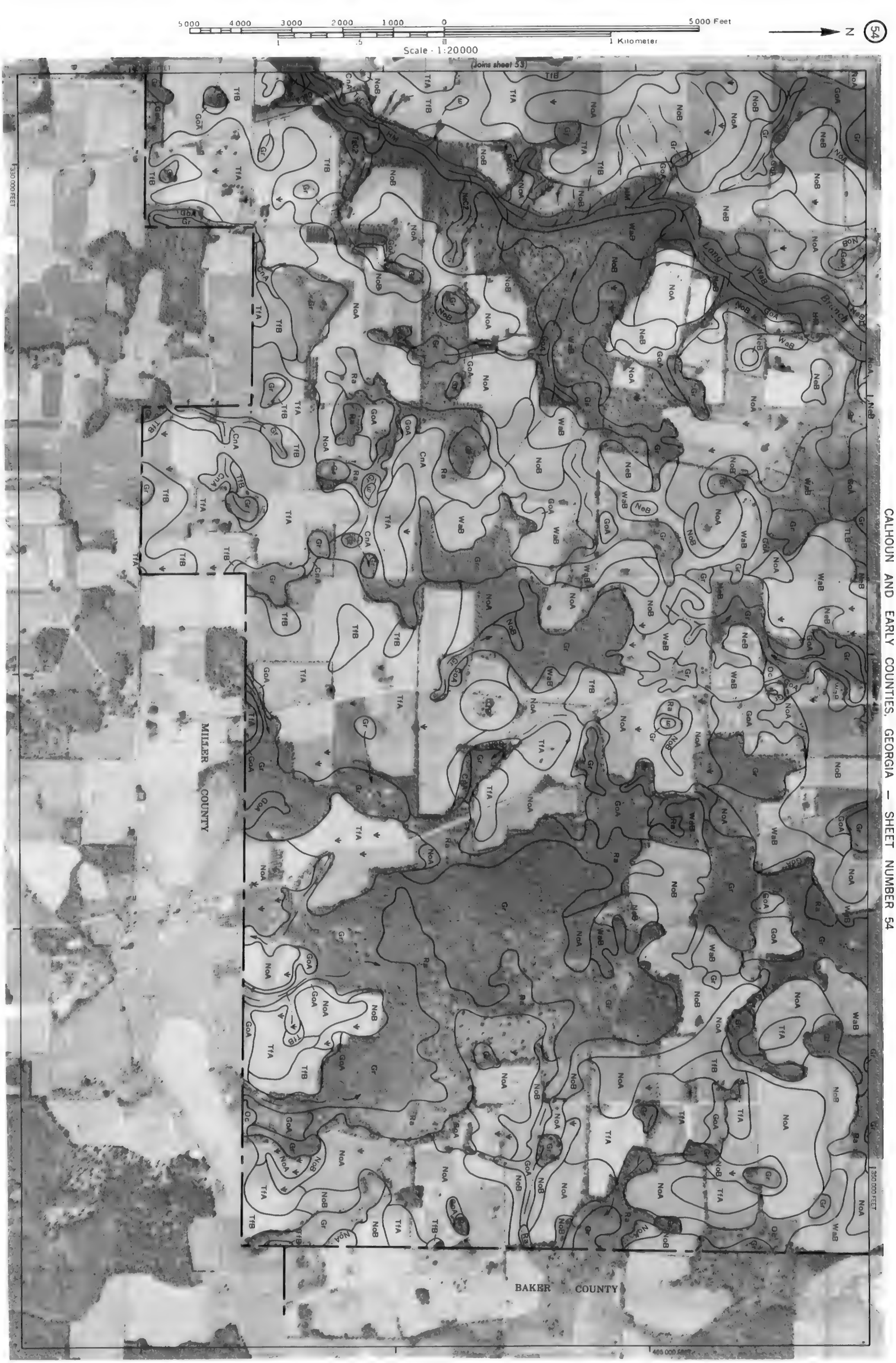


5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N



CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 54

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 55

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

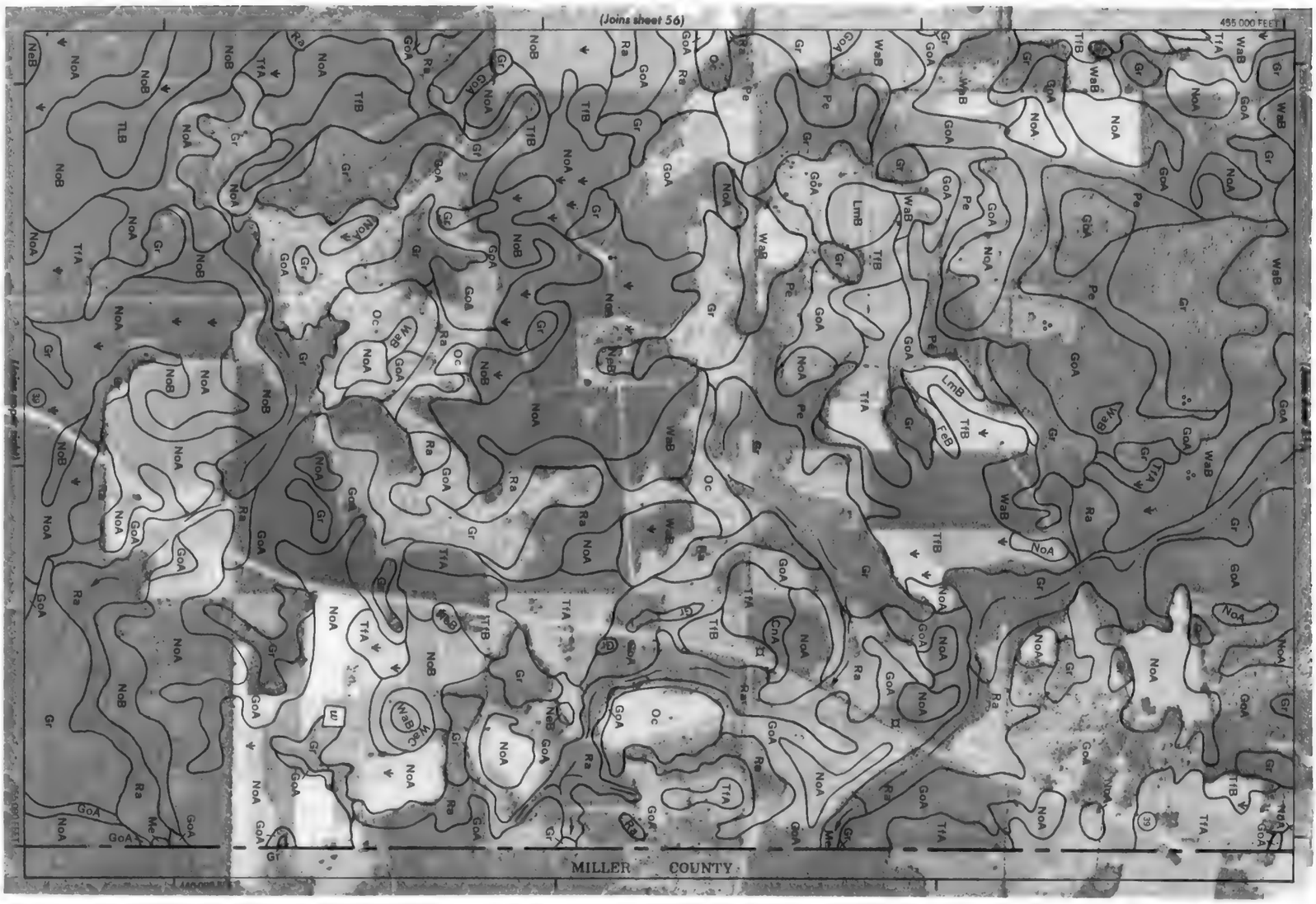
N

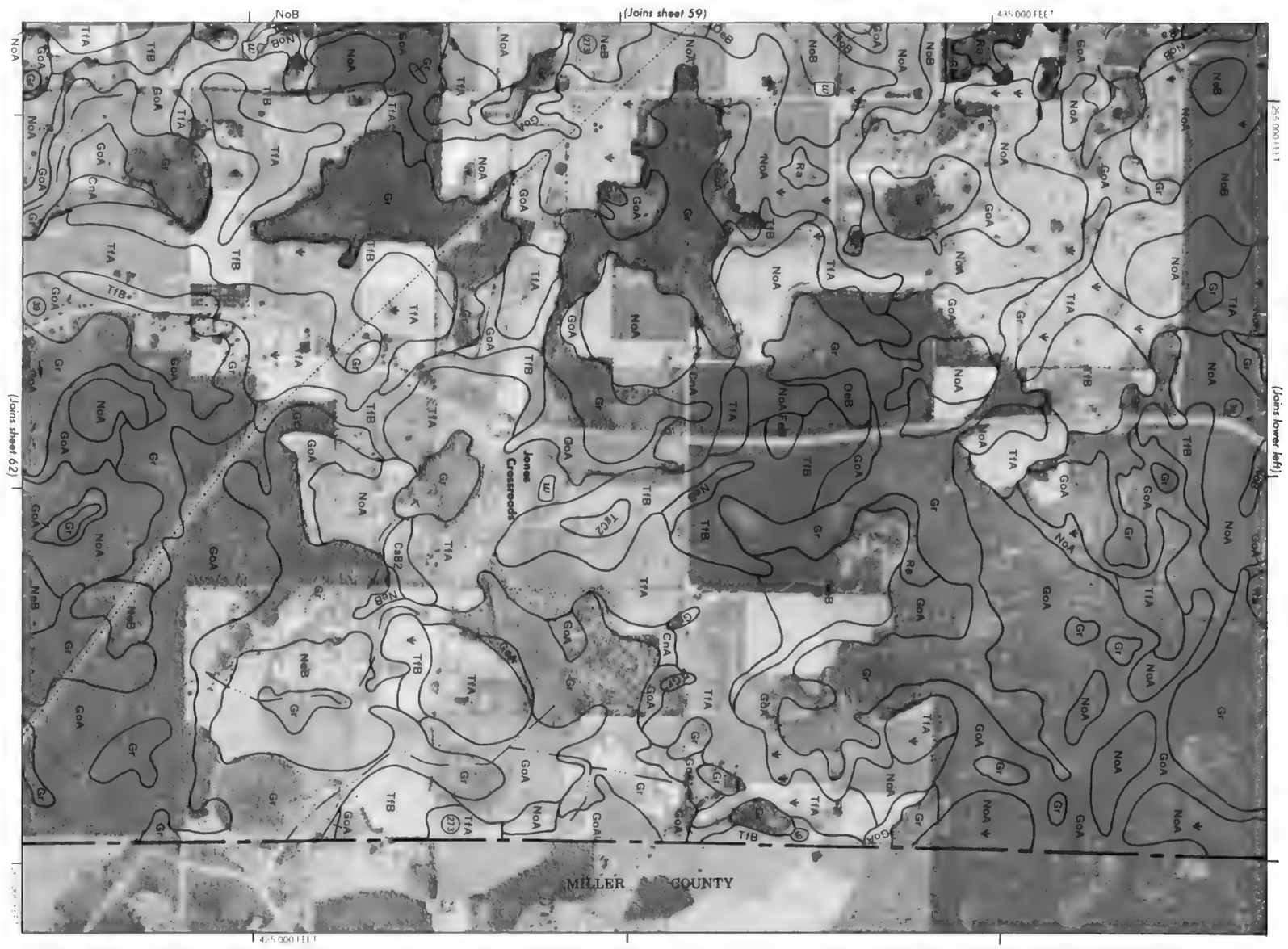
55

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 55

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



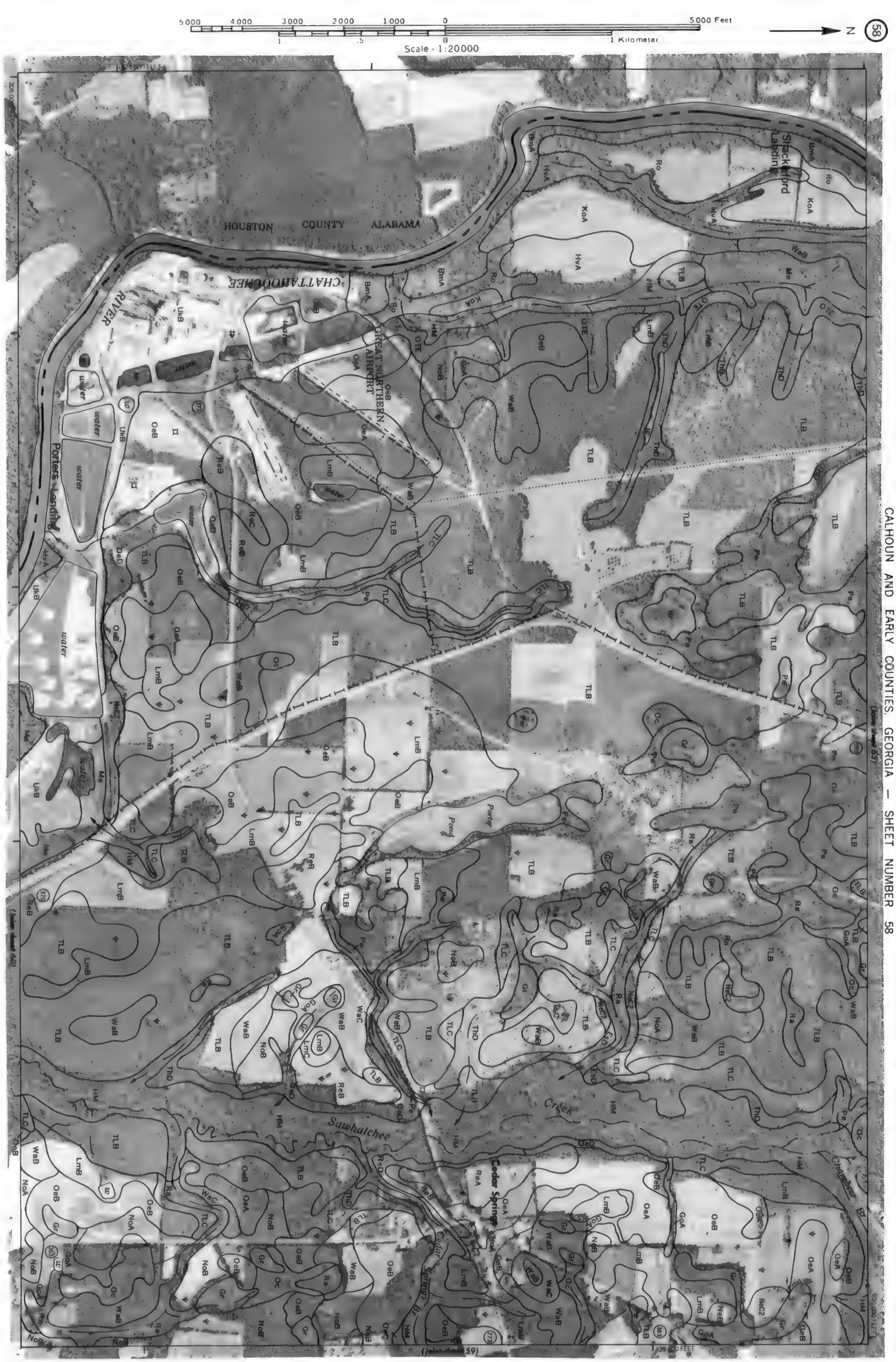


5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

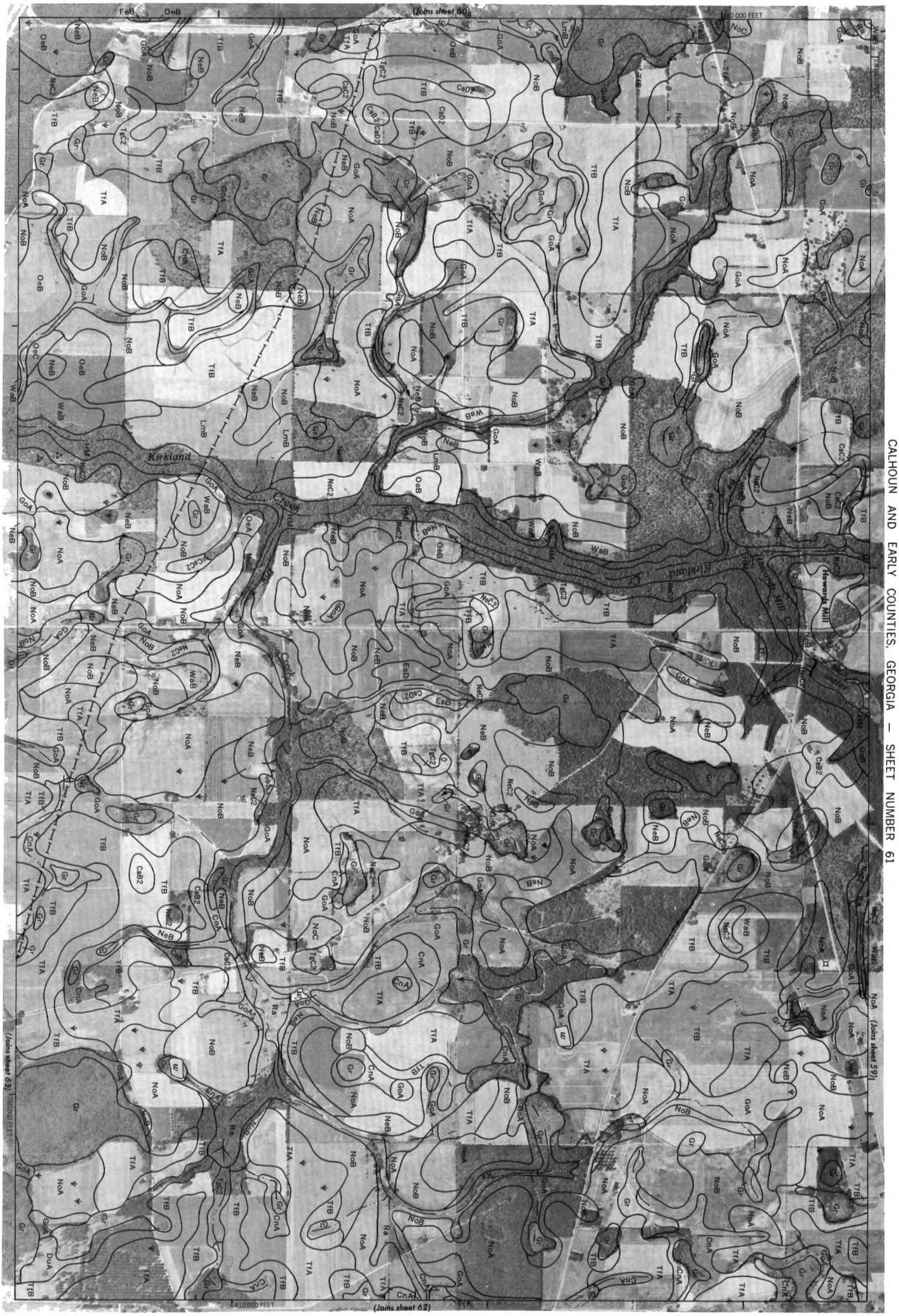
Scale - 1:20000

N

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CALHOUN AND EARLY COUNTIES, GEORGIA NO. 61

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



5000 4000 3000 2000 1000 0 5000 Feet

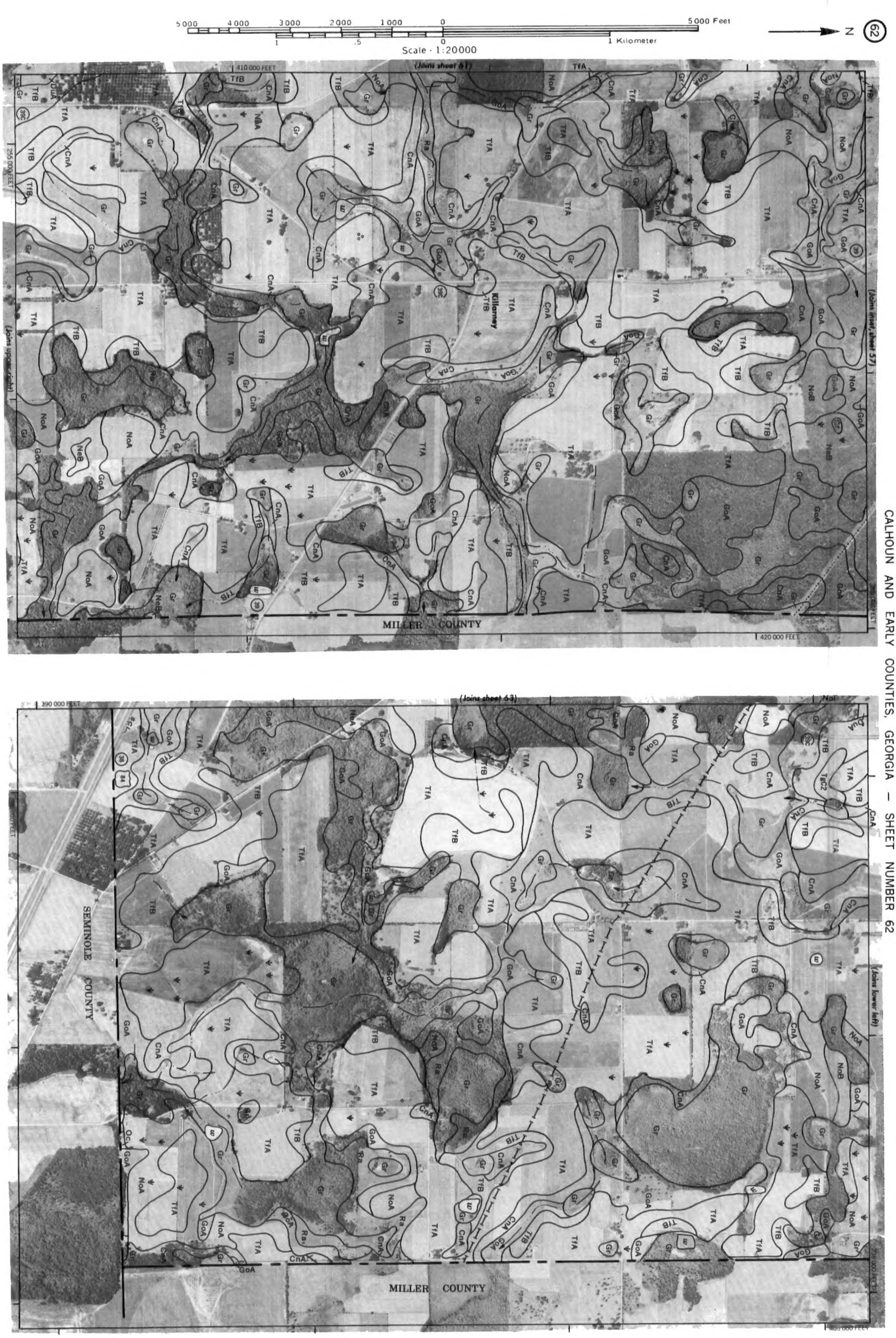
1 .5 0 1 Kilometer

Scale - 1:20000

N

61

CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 61



CALHOUN AND EARLY COUNTIES, GEORGIA — SHEET NUMBER 62

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

63